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Vol. XXV. No. 5.

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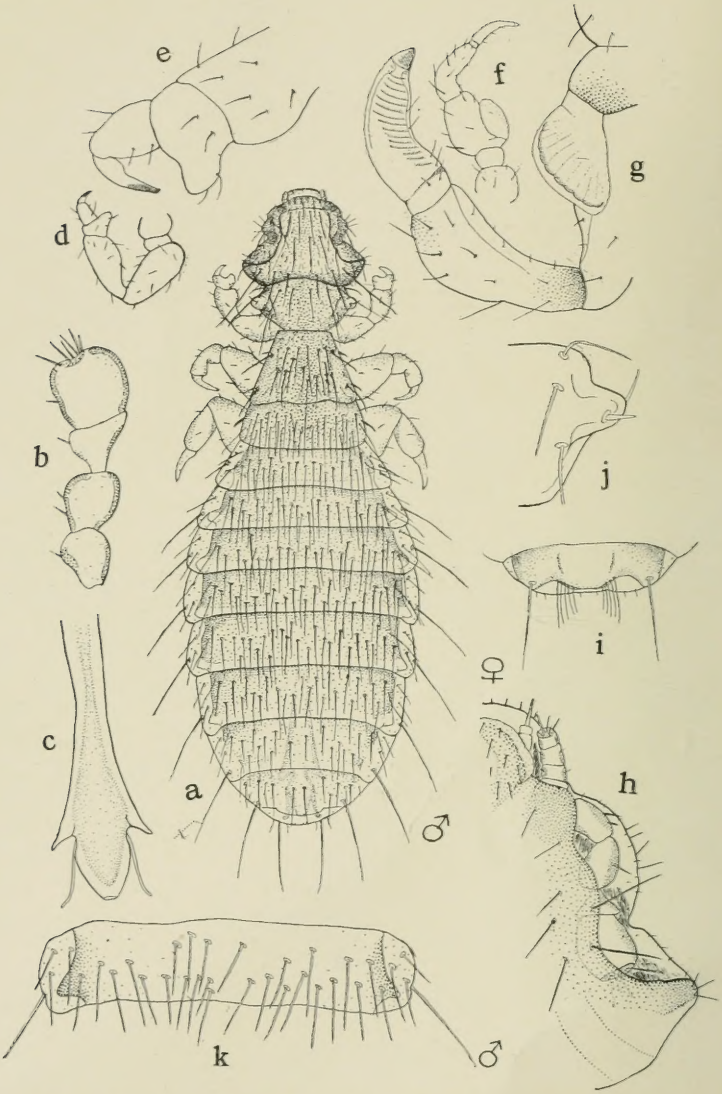

MALLOPHAGA OF THE VIZCACHA—KELLOGG AND NAKAYAMA

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

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Mallophaga of the Vizcacha.

By V. L. KELLOGG and S. NAKAYAMA, Stanford University, California.

(Plate VIII.)

The vizcacha (*Lagidium peruanum* Meyen) is a small, long-tailed, long-eared, soft-furred rodent of the Andes, with a head like a rabbit's and body like that of a giant mouse, a mouse as large as a small hare. It belongs with the chinchillas in the family Chinchillidae (or Lagostomidae) which comprises only four living species, confined to Chili, Bolivia, Peru and Argentina. It is, however, a well-represented family in the South American Tertiaries and Pleistocene, at least three-score species having been described from fossils collected all the way from Patagonia to Peru.

Only one ectoparasite has been heretofore recorded from the vizcacha, namely a species of *Gyropus* (Mallophaga) described by Gay in his *Fauna Chilensis* (about 1850), but

utterly unrecognizable from this description. The taking of two score specimens of Mallophaga last January and June (1913) by Dr. C. H. T. Townsend, government entomologist of Peru, from three vizcachas shot at Ninahuanchi, Peru (alt. 13,000 ft.), and one shot at Cerro Picuna, Peru (alt. 8,000 ft.), allows us to make some definite records of the ectoparasites of this interesting rodent.

The specimens from the vizcachas kindly sent us by Dr. Townsend represent several Mallophagan species, of which two, both new (in the face of the impossibility of recognizing Gay's vizcachan *Gyropus*) are undoubtedly peculiar to the vizcacha. For one of these species it is necessary to establish a new genus. In addition, the material, credited to the vizcacha, included two additional species, undoubtedly abnormal stragglers (in game bag or on the skinning table), one of them being the common *Lipeurus baculus* of doves, and the other a *Goniodes* which may have straggled either from doves or pheasants. Dr. Townsend writes us that his Indian collectors do frequently kill doves on their collecting trips, and that, despite his careful instructions, they may well allow their specimens to become too neighborly with each other in the game bag.

Of the two new species, one is a *Gyropus,* while the other, as said, plainly represents a new genus, a two-clawed form—the typical mammal-infesting Mallophaga are one-clawed—of a general appearance rather like that of *Menopon* or *Trinoton* (both bird-infesting genera). Although, as just suggested, most of the mammal-infesting Mallophaga are one-clawed species, belonging to the two genera *Gyropus* and *Trichodectes* (to this latter single genus belongs a considerable majority of all Mallophagan species so far recorded from mammals) a few two-clawed species, representing three of four genera, have been taken from mammals. Especially are these two-clawed species found on marsupials. Also, for almost each of these species a new genus has had to be established. These two special conditions of their occurrence give them a particular interest to students of Mallophaga.

The last genus to be established for the reception of one of these two-clawed mammal-infesting species is *Trimenopon,* containing the single species *T. echinoderma,* described by Bruce Cummings (Bull. Ent. Research, May, 1913) from specimens (males and females) taken from the wild guinea pig, *Cavia aperea* Erxleben, at Villa Rica, Paraguay, in November, 1910, F. Posner, coll. As our new species from the vizcacha, not assignable to any known genus, is also South American, and also resembles both *Menopon* and *Trinoton* in general habitus, and is also strongly spiny, our first thought was that it might be referable to Cummings' new form. But it is not at all possible to assign it thus. It is not only different in species but different in genus from *Trimenopon echinoderma,* despite some slight resemblance in superficies. What is possible, and necessary, however, in the light of the establishment of the new genus *Trimenopon,* is to call attention to the fact that, if this genus is to be accepted as distinct from *Menopon* —and we do not suggest that it should not be—a species described by Kellogg and Paine in 1910 (Entomological News, vol. 21, pp. 461-462), under the name *Menopon jenningsi,* from specimens taken from the domestic guinea pig, *Cavia cobaya,* by Mr. A. H. Jennings, in the Canal Zone, Panama, must be assigned to this new genus. And, besides, there should be made a careful examination of the two species, to see if they are not identical. The descriptions and figures as given by the authors of the species are certainly much alike. The principal difference seems to be in the measurements, *echinoderma* being larger than *jenningsi* by one-third. If the two species are one, then their (its) name is *Trimenopon jenningsi.*

A special point of interest in connection with the two-clawed mammal-infesting Mallophaga is their obvious tendency, despite their otherwise plainly Amblyceran affinities, to have 5-segmented antennae, which is a prime characteristic of the other Mallophagan sub-order, the Ischnocera. The antennae of *Boopia, Heterodoxus, Latumcephalum* and, now, *Trimenopon,* are all described as 5-segmented, instead of 4-segmented,

as one would expect to find them. It is true, however, that there is a division of the third antennal segment into two segments in the case of several undoubted species of the large and rather heterogeneous genus *Menopon,* which is the old genus —old in point of priority of establishment by students of the group—to which the new genera are most nearly related. It should be added that it is not easy to determine accurately, or to interpret confidently, the exact condition of the antennae as regards number of segments. The suture dividing the third segment into two, thus increasing the number from four to five, may be so faint as to be capable, under different eyes, of seeming to be distinct enough to be accepted as actual suture, or of not being so accepted. In the case of the new genus which we have to establish for the reception of one of our new Mallophagan species from the vizcacha, we give four as the characteristic number of segments. Four is certainly the correct number for the type species of the genus. We have gone to much pains to ascertain this.

As a matter of fact the whole subject of the Mallophagan parasites of mammals, especially the subject of the two-clawed species, needs careful working over.

The description of the new species follows.

Gyropus alpinus n. sp. (Plate VIII.)

A rather large species, unusually hairy, elongate, and belonging to that group of Gyropus species with fore legs and feet smaller than and different from the other two pairs. A pair of prominent laterally projecting lobes on the prothorax, well developed clinging pads on the femora of second and third legs, and the length and irregular arrangement (not in the usual one or two regular transverse rows) of the numerous long hairs on the dorsal surface of the abdomen, especially distinguish the species. General color pale yellowish brown, with thorax darker, and an incomplete darker line running sub-marginally around the head.

Male (Pl. VIII, *a*).—Length of head .29 mm., thorax .40 mm., abdomen 1.02 mm., total 1.71 mm.; width of head .37 mm., thorax .32 mm., abdomen .66 mm. *Female.*—Length of head .29 mm., thorax .43 mm., abdomen 1.25 mm.; width of head .36 mm., thorax .37 mm., abdomen .72 mm.

Head of both male and female wider than long with well expanded squarish temples, antennae (Pl. VIII, *b*) concealed in deep lateral fos-

sae (Pl. VIII, *h*), and numerous long, strong, spiny hairs, six arranged along the occipital border, two in each temple, four in a transverse series about even with the deepest part of the antennal fossae, and eight or ten others anterior to this line. On the other side are a few hairs of which two, one in each temporal region, are particularly long and conspicuous.

The thorax is long and slender, the effect of narrowness being heightened by the coloring which is paler in the lateral margins and angles. The prothorax has a salient blunt lateral projection on each side (Pl. VIII, *j*) and bears six spiny hairs on its dorsal surface. On each lateral process are two short, curved spine-hairs. The long pentagonal mesothorax has straight lateral margins and bears about a score of strong spiny hairs on its dorsum, including two on each lateral margin. In addition each lateral margin bears two short pointed spines. The short metathorax, plainly set off from the mesothorax by a suture, bears about thirty long spiny hairs on the dorsum, unevenly disposed in two transverse series. On the under side of each thoracic segment there are two series of long, spiny hairs, arranged in lines converging posteriorly so as to form a V.

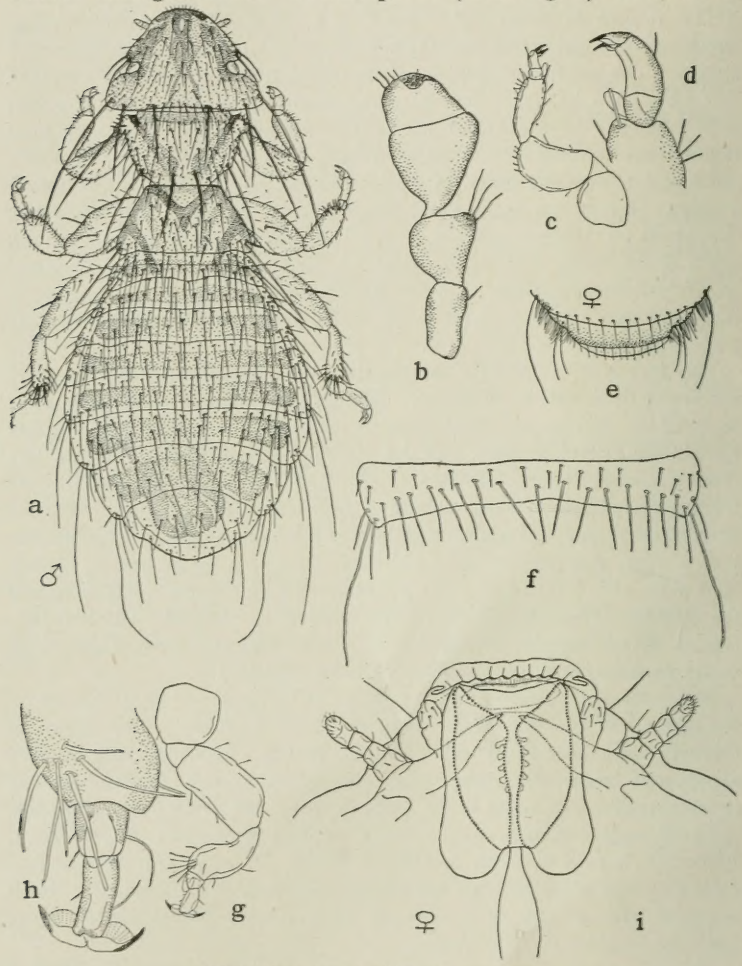
The fore legs are a little shorter than the middle and hind ones and markedly different in make-up. The femora have no clinging pads as have the second and third legs, the first tarsal segment has a strong thumb-like lateral process, and the second segment is not elongate and bears a normal claw (Pl. VIII, *d, e*). The femora of the second and third pairs of legs have a well-developed clinging pad on the side, the first tarsal segment is short, ring-like and inconspicuous, while the second is long, transversely striated and looks like a large, heavy, slightly bent claw (Pl. VIII, *f, g*). As a matter of fact the real claw is simply the slightly differentiated tip of this claw-like segment. (This condition of tarsal segment modified to be a claw-like and tarsal claw acting as its continuous tip is common to most Gyropi.)

Abdomen not quite twice as long as wide, and one-fifth shorter in the male than in the female, about 2½ times as long as the thorax in the male, and three times as long in the female. Conspicuously covered above and below with long, spiny hairs, not evenly arranged in one or two transverse rows as in most Gyropi, but irregularly disposed, although approaching a rough arrangement in three rows (Pl. VIII, *k*). Posterior border without hooks or spines or other projecting processes, except a few conspicuous long hairs (Pl. VIII, *a* and *i*). Each segment with a long spiny hair in each postero-lateral angle. Male genitalia as shown in Pl. VIII, *c*.

Numerous males and females taken from a vizcacha, *Lagidium peruanum* Meyen, Ninahuanchi, Peru, 13,000 ft. altitude, C. H. T. Townsend, collector.

Genus **PHILANDESIA** nov.

A two-clawed genus, occurring on mammals, with four-segmented antennae and other general Amblycerous characters and outline of body. Head with distinct, narrow, and peculiar ocular emarginations. Mouth parts (Text-fig. *i*) of unusual



Philandesia townsendi n. sp., nov. gen.

a, male; *b*, antenna of male; *c*, front leg of male; *d*, tip of front leg of male, enlarged; *e*, last abdominal segment of female, ventral aspect; *f*, fourth abdominal segment of male, dorsal aspect showing disposition of hairs; *g*, middle leg of male; *h*, tip of middle leg of male, enlarged; *i*, ventral aspect of front part of head showing mouth parts.

type, the mandibles being long and slender and the other mouth parts together with the hypopharynx and pharyngeal skeleton forming a sort of grasping tube or furrow. The antennae are of the usual capitate Amblycerous type, but segment three is unusually narrow at base, and segment two unusually robust and subspherical in shape. Metathorax distinct although short; prothorax laterally expanded or "winged." Head and thorax with very long, strong, conspicuous spiny hairs, but with no short broad-based spines on the under side of the head as in *Menecanthus* (*Menopon*) or *Heterodoxus*. Feet with small colorless broad flaps or pads extending outwards from the base of the claws. Male genitalia characteristic. The only species so far known is from South America (Peru); host, the vizcacha, *Lagidium peruanum* Meyen.

Philandesia townsendi sp. nov. (Text-fig.)

A Mallophagan species of medium size, the male being one and two-thirds, and the female being about two millimeters long. In both male and female the head is almost twice as wide as long, while the abdomen of the male is shorter and broader than that of the female. In general appearance it suggests a very spiny *Menopon* or *Trinoton* with long thorax and short abdomen. Striking features are the narrow, round-ended, ocular emarginations, the curious groove-like appearance of the mouth (Text-fig. *i*), and the small and delicate but distinct lateral flaps or pulvilli at the base of the claws.

Male (Text-fig. *a*).—Length of head .30 mm., thorax .35 mm., abdomen .98 mm., total 1.64 mm.; width of head .58 mm., thorax .58 mm., abdomen .86 mm. *Female*.—Length of head .36 mm., thorax .51 mm., abdomen 1.09 mm., total 1.96 mm.; width of head .59 mm., thorax .66 mm., abdomen .99 mm.

Head triangular with small but distinct ocular marginations which are narrow and with sub-parallel margins at the inner ends which are narrowly rounded. On the dorsal aspect a very spiny hair in each temporal angle projecting back almost to abdomen and four other long spiny hairs along the occipital margin. There are two strong spiny hairs in each lateral marginal angle just in front of the ocular emargination, and numerous shorter spine-hairs scattered over the dorsum of the head. On the ventral face there are even more long spiny hairs and numerous shorter ones. The antennae are four-segmented, no signs of a fifth segment (division of segment 3 by a transverse suture) being apparent. A single hair (sense-hair ?) rises from the apical angle of segment 1, three longer hairs from the apical angle

of segment 2, and there are several sense hairs and a pronounced sense pit at the tip of segment 4 (Text-fig. *b*). Whole head pale translucent yellowish brown, which is the general color tone of the whole body. Spots of darker opaque brown indicate the special chitinization of mouth parts, etc.

Prothorax large, longer than the head and with conspicuous expanded lateral margins or wings, and covered all over with strong spiny hairs some of them, especially those of the lateral and posterior margins, very long. Ventral face also with long spiny hairs. Mesothorax smaller than prothorax, being little more than half as long, although quite as wide. (N. B.—In Text-fig. *a* the mesothorax is too long.) It is abundantly supplied with spine-hairs, a very long one arising from each postero-lateral angle. Metathorax distinctly set off from mesothorax by suture, but smaller and resembles an abdominal segment in general shape and appearance. Its numerous spine-hairs are disposed as those of the abdominal segments are. The general pale translucent yellowish brown of the thoracic segments is patterned by the showing through of the darker chitin rods of the ventral aspect and endoskeleton.

Legs (Text-figs. *c, d, h, g*) rather long and strong, and very spiny, especially the third pair. The distal ends of the tibiae of this pair are furnished with a conspicuous group of short stout spines, while a less conspicuous group occurs also on the ends of the second tibiae. The legs are concolorous with the body.

The abdomen of the male is broad and only a little longer than head and thorax combined. In the female the abdomen is less broad and is also longer, giving it a decidedly more slender appearance. The entire abdomen, both on dorsal and ventral aspects, is thickly beset with long spiny hairs, those rising from the lateral margins (especially of the hinder segments) being very long indeed. The hairs on the dorsal aspect are disposed in two transverse series, but rather irregularly. The hairs of the hinder series of the two are longer than those in the front one (Text-fig. *f*). Posterior margin of abdomen in both male and female simply and broadly rounded, that of the female (Text-fig. *e*) with numerous fine hairs in close series at the lateral margins, while that of the male has the strongly-chitinized, unusually shaped genitalia either projecting or, if retracted, showing through rather plainly. (Text-fig. *a*.)

Numerous males and females taken from a vizcacha, *Lagidium peruanum* Meyen, Ninahuanchi, Peru, 13,000 ft. altitude, C. H. T. Townsend, collector.

In addition, Dr. Townsend's sending includes a species of Anopluran, represented by one male and three females, evi-

dently all of one species, a species probably undescribed, of *Polyplax*. But all the specimens show some signs of immaturity, notably in the hair covering of the body; so that, although the five-segmented condition of the antennae indicates maturity, we prefer not to describe the species at present. Some mites, also, were included and are almost certainly new, but we shall not undertake their description.

Finally in addition to the ectoparasites from the vizcachas, Dr. Townsend has sent us some Mallophaga taken in Peru from other mammal and bird hosts. The specimens from mammals include the familiar *Trichodectes parumpilosus* from the horse, the curious *Menopon jenningsi,* described by Paine and myself in 1910 from the domestic guinea-pig, *Cavia cobaya,* and recorded by Paine again in 1912 from the wild guinea-pig, *Cavia cutleri,* of Peru, Dr. Townsend's specimens also coming from a domestic guinea-pig, and the interesting *Trichodectes breviceps* from the llama, described by Rudow in 1866, and not again recorded until now. Of chief interest, however, are two Mallophagan species taken from two specimens of the capuchin monkey, *Cebus capuchinus.* We are not as yet clear as to their status.

The specimens from the birds will not be referred to in this paper.

EXPLANATION OF PLATE VIII.

Gyropus alpinus n. sp.; *a,* male; *b,* antenna of male; *c,* genitalia of male; *d,* front leg of male; *e,* tip of front leg of male, enlarged; *f,* middle leg of male; *g,* tip of middle leg of male, enlarged; *h,* ventral aspect of part of the head of male, showing antenna in fossa; *i,* last abdominal segment of female; *j,* lateral margin of prothorax; *k,* fifth abdominal segment, dorsal aspect, showing disposition of hairs.

A Correction.

The *Proceedings* of the Second International Congress of Entomology held at Oxford, August, 1912, have appeared, dated Oxford, February, 1914. They form Volume I of the publications of this Congress, Volume II being the *Transactions* issued in October last. Owing to some error, the name of G. B. Cresson appears on pages 124 and 160 of the *Proceedings,* instead of that of E. T. Cresson, as having been elected an Honorary Member of the Congresses.

An Improved Method of Caring for Specimens of Butterflies on Extended Collecting Trips.

By R. A. Leussler, Omaha, Nebraska.

No doubt every butterfly collector who ever "papered" a lot of desirable material on some extended collecting trip, has experienced more or less disappointment when, on spreading the specimens, those the condition of which, when taken, left nothing to be desired, have been found minus antennae, or legs, the wings rubbed, or the thorax and abdomen flattened and distorted. The spreading of any papered specimens, too, is apt to prove more or less unsatisfactory, especially in those families having strong thoracic muscles, as the Hesperiidae, since when specimens have lain in papers though for a short time, the wings often show a tendency to revert to the position held while in the papers, which cannot be entirely overcome even though the insects are kept on the spreading boards for a considerable length of time. Also insects that have been once dried and then pinned do not become as firmly fixed on the pin as if pinned when fresh.

During the past two summers I have employed a method of caring for my specimens, when on trips varying in length from a few days to two weeks, which proved so very satisfactory that I feel it deserves description for the benefit of other collectors. In general terms it consists in pinning the specimens while still pliable, reducing the wings to a horizontal position (in other words giving the insect a tentative spreading), and then partially relaxing them when they are to be transported homeward or from one place to another on the trip. Simple as the method is, its most effective application requires that it be described in detail.

The first step is to put the specimens from the killing bottle into tight tin boxes for about 24 hours, when all rigor mortis will have disappeared. For this purpose I use tin shoe polish boxes, and five or six of these boxes will hold 60 to 100 small and medium-sized butterflies. To keep the specimens from damaging each other by contact, I place Japanese crepe paper,

cut to fit the boxes, between the layers of butterflies, and also take measures to prevent the boxes rattling around in the pocket. No pressure is allowed to come on the specimens. If the day is very hot and dry, a few small leaves or some grass may be placed in each box when it is filled, for the purpose of supplying a little moisture. Large butterflies may be pinned directly in an ordinary collecting box.

On the evening of the following day I remove the specimens from the tin boxes and pin them carefully, so that the position of the pin need not afterward be changed, placing them in a cork-lined box, inclining the pin forward at an angle of about 45 degrees, and holding the wings in a horizontal position with respect to the body, by thrusting a long steel pin into the cork so that the side of it rests against the upper surface of the wings. At the same time I also see to it that the antennae are kept away from the pin on which the insect is impaled, so they are not endangered in later handling. In ordinary weather 12 hours is a sufficient length of time for the specimens to become set, after which they can be transferred into the boxes in which they are to undergo transportation.

It is important to the success of this method that these boxes should be provided with some means of partially relaxing the specimens previous to transportation. A cheap and simple, yet effective device for the purpose is found in the form of a small pan about 4 in. x 8 in., 3/8 in. deep, made of oiled sheet, such as is commonly used in letter press copying. This pan is made by marking off the size lightly with the point of a pocket knife, turning up the edges and fastening them by means of small paper fasteners or clasps. Into this pan are put half a dozen sheets of ordinary blotting paper, and the whole is fastened securely to the inside of the lid of the box with brass paper fasteners reinforced with washers of oiled sheet.

Into these boxes the specimens are pinned after the wings have become set as described above. They can be pinned with wings overlapping or "shingled," so that a great many speci-

mens will find room in a single box. Eight such boxes can be placed in an ordinary suit case together with nets and other paraphernalia, and will accommodate 300 to 400 specimens.

When it is desired to move to another locality or to ship specimens home, the blotters in the boxes are moistened, a few hours in advance, with water to which a few drops of carbolic acid have been added, and the boxes for the time left upside down. The specimens will thus be sufficiently relaxed to stand the roughest kind of journey without the slightest damage, and will remain pliant for from 24 to 72 hours according to the amount of water supplied. If the boxes are wrapped with wax paper and an outer wrapping of stout paper, the moisture is conserved and the period of pliancy accordingly prolonged.

In handling my specimens in the above manner, I place on the pin of each specimen, at the time of pinning, a temporary pin label, bearing a number to indicate the locality, besides the date of capture. This pin label accompanies the specimen during all subsequent handling, and is ultimately replaced by a permanent label carrying full data obtained from a field note book or key.

The advantages of this method may be summed up as follows:

1. Immunity from damage to specimens in transit and handling.

2. Retention of natural shape of bodies of insects.

3. Greater facility in relaxing and spreading, resulting in much better specimens, with wings in better position.

4. Ready examination, selection and identification of material without the delay of spreading.

This method is not entirely original, being first suggested by seeing Mr. R. W. Dawson, of the University of Nebraska, place his specimens in tin boxes at the end of a day's collecting, and pin them on the following day when they were pliable so that the wings readily remained in a horizontal position. Possibly other collectors have hit upon the same scheme, but many have not and it seems good enough to pass along for their benefit.

The Neotropical Tipulidae in the Hungarian National Museum (Diptera)—III.

By Chas. P. Alexander, Ithaca, N. Y.

(Plate IX.)

Tribe 3—Eriopterini.

Genus **Erioptera** Meigen.

1803. *Erioptera* Meigen; Illiger's Magaz., vol. 2, p. 262.

Erioptera (Mesocyphona) annulipes Williston.[1]

One female from San Bernardino, Paraguay, Fiebrig, 1908; one female from Callanga, Peru.

Erioptera (Mesocyphona) sp.

One female from Paraguay, taken by Fiebrig. It is closely allied to *immaculata* Alexander.[2]

Erioptera (Mesocyphona) sp.

One male from Coroico, Bolivia. Closely allied to *caloptera* Say.[3]

Genus **Molophilus** Curtis.

1833. *Molophilus* Curtis; Brit. Entomol., p. 444.

Molophilus flavidus sp. n. (Pl. IX fig. 2).

Color yellowish; male antennæ elongate; ventral appendage of the male hypopygium deeply bifid.

Male.—Length, about 4.1 mm.; wing, 5.6 mm. Palpi brown; antennae elongate, the segments covered with a dense pubescence, antennæ very light brown; head dull yellow.

Pronotum pale yellow without apparent stripes, the lateral margin of the sclerite and the sides of the pronotal scutellum very light yellow; scutum, scutellum and postnotum light brownish yellow. Pleuræ light yellow. Halteres, stem yellow, knob broken.

Legs, coxæ and trochanters yellow; femora yellow basally darkened into brownish on the apical half; tibiæ and tarsi brown.

Wings pale yellowish, veins light yellow, indistinct. Venation: basal deflection of *R*4 plus 5 very reduced, or, in other words, the veins *R*2 plus 3 and *R*4 arise almost directly from the end of *R*5.

Abdomen light yellowish brown. Hypopygium with the ventral appendage (see Plate IX, fig. 2) very deeply bifid, the inner branch shorter, at its tip slightly denticulated, the outer branch very long, bearing

[1] Williston, Trans. Ent. Soc. Lond., p. 294 (1896).

[2] Alexander, Proc. U. S. Nat. Mus., vol. 44, No. 1966, p. 518; pl. 66, fig. 20.

[3] Say, Journ. Acad. Nat. Sci. Phila., vol. 3, p. 17 (1823).

along its ventral face a row of spine-like teeth, the tip flattened and provided with a few appressed teeth. The dorsal lobe at its dorso-apical angle provided with the usual curved hook-like appendage, the lobe densely clothed with long, pale hairs; the tip of the lobe ventrad of the hook-like appendage is produced into a short, sharp spine.

Holotype, male, Concepcion, Chile (P. Herbst, coll.), 1904, in the Hungarian National Museum.

The ? *Erioptera uniformis* Blanchard[4], ? *longipes* Philippi[5] and ? *pallida* Philippi[6] may possibly be *Molophili.* Philippi's description would seem to indicate rather unusual insects, *longipes* being described as having an elongate rostrum. In our present state of knowledge of Chilian Tipulidae, I cannot determine any of the forms before me as Blanchard's or Philippi's species.

Molophilus taurus sp. n. (Pl. IX, fig. 1.)

Color brown; male antennæ short, ventral appendage of the male hypopygium deeply bifid.

Male.—Length, about 4.6 mm.; wing, 6.2 mm. Palpi dark brown; antennæ short, the flagellar segments oval to elongate-oval, brown; head blackish gray.

Pronotum narrow, the scutum yellow, with a brown tinge, a bunch of long black hairs at each outer angle; scutellum light yellow. Mesonotal præscutum light grayish brown; scutum and scutellum light brown; postnotum very dark grayish brown. Pleuræ brownish gray, more yellowish around the wing-root. Halteres pale yellowish brown.

Legs brown. Wings subhyaline, the veins distinct, brown. Venation: *R*4 plus 5 rather long, longer than the cross-vein *r*.

Abdomen dark brown, densely clothed with long pale hairs. Hypopygium with the ventral appendage (see Plate IX, figure 1) very deeply bifid, the inner branch short bearing on its inner face a number of blunt teeth, including a bunch of about three near the middle, the tip sharp; outer branch long, slender, directed caudad and entad, crossing its mate of the opposite side like a rapier, long, cylindrical, tapering to the sharp point. Dorsal lobe and its appendages about as in *flavidus.*

Holotype, male, Rancagua, Chile. December, 1904 (P. Herbst, coll.), in the Hungarian National Museum.

[4] Blanchard, Gay, in Hist. fis. y polit. de Chile; Zool., vol. 7, p. 343 (1852).

[5] Philippi, Verb. Zool-bot. Ges. Wien, vol. 15, p. 616 (1865).

[6] Philippi, *l. c.*

Molophilus sagittarius sp. n. (Pl. IX, fig. 4.)

Color brown; male antennæ short; ventral appendage of the male hypopygium simple, its caudal margin with about six long serrations.

Male.—Length, about 3.8 mm.; wing, about 6 mm. Palpi dark brown. antennæ brown, short, the flagellar segments oval; head grayish brown.

Pronotum enormously enlarged, fitting around the cephalic margin of the mesonotum like a life belt, bright yellow. Præscutum and scutum dark brown; scutellum yellowish brown; postnotum dark brown. Pleuræ dark brown. Halteres entirely light yellow.

Legs, coxæ and trochanters brownish yellow; femora yellowish brown; tibiæ and tarsi brown.

Wings subhyaline, veins brown, rather distinct.

Abdomen dark brown. Hypopygium with the ventral appendage (See Plate IX, figure 4) simple, flattened, its outer margin with about six long serrations.

Female.—About as in the male but the pronotum is not conspicuously swollen and is not yellow; the thoracic præscutum has indications of three darker dorsal stripes; wings a little browner.

Holotype, male, Coroico, Bolivia. *Allotype*, female, Callanga, Peru. *Paratype*, female, Cillutincara, Bolivia.

Allied to *M. perseus* Alexander[7], of Colombia, but the ventral appendage of the male hypopygium is much less regularly serrated on its outer margin and the teeth are fewer (about 6 instead of 10 or 12) and longer; dorsal lobe very small and narrow. The hypopygium of *M. guatemalensis* Alexander[8] has never been described and so I figure the ventral hypopygial appendage (see Plate IX, fig. 3); the appendage is simple, sickle-shaped, on the outer side near the base with a sharp point.

Genus **Gnophomyia** Osten Sacken.

1859. *Gnophomyia.* Osten Sacken; Proc. Acad. Nat. Sci., Phila., p. 223.

Gnophomyia luctuosa Osten Sacken.

One female from the Sierra, San Lorenzo, Colombia; Ujheyi, collector.

[7] Alexander, Journ. N. Y. Ent. Soc., vol. 21, pp. 201, 202; pl. 6, figs. 4, 5 (1913).

[8] Alexander, Proc. U. S. Nat. Mus., vol. 44, No. 1966, p. 511 (1913).

Gnophomyia maestitia sp. n. (Pl. IX, fig. 8.)

Color black; a yellow spot on the caudal end of the pronotum; wings dark colored with a darker brown cross band near the cord; halteres black; antennæ of the ♂ elongate. Male, length 5.5 mm.; wing, 5.8 mm. Female, length 5.5 mm.; wing, 5.8 mm.

Male.—Palpi black; antennæ long, extending beyond the base of the wing; flagellar segments elongate, black; head black.

Pronotal scutellum largely light yellow, the median portion dark. Mesonotal præscutum deep black; scutum, scutellum and postnotum black, the scutellum shiny and with a pearly lustre. Pleuræ black; a narrow, light yellow mark extending from the end of the pronotal scutellum almost to the wing-root; a yellow blotch between the middle and hind coxæ.

Halteres black. Legs black. Wings dark colored, a broad, irregular dark band in the vicinity of the cord; cells *R* and *M* almost hyaline. Venation (see Plate ix, figure 8): Cross-vein *r* connecting with *R2*; *R2* very long; *Rs* short, straight.

Abdominal tergites dark brownish black; sternites a little paler.

Female.—Yellow color of the thorax reduced, the pronotal pattern confined to a small rounded spot underneath the pseudosutural fovea; yellow on the mesosternum not indicated; antennæ rather shorter.

Holotype, male, Vilcanota, Peru; *Allotype,* female, Callanga, Peru; *Paratypes,* 1 male, Vilcanota, Peru; 3 males, 2 females, Callanga, Peru; in the Hungarian National Museum; 1 male, 1 female, paratypes, in author's collection.

Most closely allied to *nigrina* Wied.[10] from which it differs in its slightly larger size, difference in body coloration and in wing pattern; *luctuosa* O. S.[11] and *tristissima* O. S.[12] are the only other species with which it could be confused, differing from the former by its long antennae, non-pubescent wings, etc., and from the latter by its black halteres, short and straight radial sector, etc.

Gnophomyia pervicax sp. n. (Pl. IX, fig. 7.)

Shiny yellowish; thoracic dorsum with three brown stripes; pleuræ yellow with a dorsal brown band; wings hyaline with a narrow brown seam along the cord; vein *R2* short. Male, length 6 mm.; wing, 6.4 mm. Female, length 4.5 mm.; wing, 6 mm.

Female.—Palpi dark brown, the basal segment a little lighter; an-

[10] Wiedemann, Aussereur-Zweifl. Ins., vol. 1, p. 37 (1828).

[11] Osten Sacken, Proc. Acad. Nat. Sci., Phila., p. 224 (1859).

[12] Osten Sacken, *l. c.*

NEOTROPICAL TIPULIDAE—ALEXANDER.

tennæ brown; front yellow; vertex brownish; occiput and genæ dull yellow.

Pronotum light dull yellow. Mesonotal præscutum shiny, dull yellow with three very broad brown stripes which are confluent behind, the middle stripe beginning at the cephalic margin of the sclerite; scutum light brown, the middle of the lobes dark brown; scutellum light brown; postnotum light brown, the sides very dark, almost black, especially behind. Pleuræ yellowish, the mesopleuræ tinged with brown; a large rounded dark brown spot between the bases of the halteres and the wings. Halteres light yellow, knob brown.

Legs, coxæ and trochanters yellowish, femora and tibiæ dull yellow, tarsi dull yellow becoming brown on the apical segments.

Wings subhyaline, a brown band extending from the tips of *Sc* and *R* down across the cord to cell *1stM2*; veins brown. Venation (see Plate IX, figure 7): *Sc* long, extending beyond the cross-vein *r*; cross-vein *r* connecting with *R2* plus 3 nearer to its origin than its tip; *R2* very short.

Abdomen with the four basal tergites yellow with a broad, dark brown, lateral margin; remaining tergites dull brown; sternites, basal ones dull yellow, terminal four sclerites suffused with brown.

Male.—This sex shows a dark brown pleural band across the sclerites; femora with a light brown tip, tibiæ with a distinct brown tip; cross-vein *r* about midlength of *R2* plus 3 and a faint brown seam along the outer end of cell *1stM2*.

Holotype, male; *Allotype*, female, Callanga, Peru, in the Hungarian National Museum.

G. pervicax is allied to *G. hirsuta* Alex.[13] (Brazil) in its peculiar venation but has only a single narrow alar cross-band.

Genus **Trimicra** Osten Sacken.

1861. *Trimicra* Osten Sacken; Proc. Acad. Nat. Sci., Phila., p. 290.

Trimicra sp.

One male from Asuncion, Paraguay, June, 1905. Vezenyi.

Genus **Sigmatomera** Osten Sacken.

1869. *Sigmatomera* Osten Sacken; Mon. Dipt. N. Am., vol. 4, p. 137.

Sigmatomera occulta sp. n. (Pl. IX, fig. 5.)

Wings without dark cross bands; cell *1stM2* closed.

Female.—Length, 13.5 mm.; wing, 14.3 mm. Rostrum and palpi

[13] Alexander, Proc. U. S. Nat. Mus., vol. 44, No. 1966, p. 523, plate 67, fig. 30 (1913).

light yellow, the terminal palpal segments a little more brown; antennæ with the two basal segments dull yellow, flagellum black; head dull greenish brown (greasy in the type).

Thoracic dorsum dull brownish yellow without well defined stripes; caudo-lateral angles of the præscutum brown; scutum and scutellum brown; postnotum greenish brown. Pleuræ dull yellow. Halteres yellow.

Legs light yellow, the tibiæ a little darkened at the tip, tarsi brown.

Wings hyaline, cells *C* and *Sc* yellow; veins *C*, *Sc* and *R* yellow, other veins dark brown. Venation (see Plate IX, figure 5): Deflection of *R2* plus 3 with a spur at midlength; cell *1stM2* closed.

Abdominal tergites rich brown with a blackish median blotch; sternites brownish.

Holotype, female, Ascuncion, Villa Morra, Paraguay, Vezenyi, in the Hungarian National Museum.

S. occulta differs from *S. flavipennis* O. S.[14], the only described species with a closed cell *1stM2*, in its lack of dark crossbands on the wing.

Genus **Rhabdomastix** Skuse.

1889. *Rhabdomastix* Skuse; Proc. Linn. Soc. N. S. Wales, ser. 2, vol. 4, p. 828.

Rhabdomastix (Rhabdomastix) illudens sp. n. (Pl. IX, fig. 6.)

Antennæ of the ♂ between four and five times as long as the body; a dark brown stigmal spot.

Male.—Length, 7.4 mm.; wing, 7.7 mm.; antennæ, 33 mm. Palpi very short, the first segment light brown, the apical segments almost black; antennæ with the basal segment enormously enlarged, barrel-shaped, the second segment small, rounded, flagellar segments successively elongated, the apical segments very long, the whole antennæ almost five times as long as the body; scapal segments brown, flagellar segments very pale, the extreme tip of each segment narrowly dark brownish black, the apical antennal segments more brown; the whole head underneath the swollen scapal segment is very deep and stout; head light gray.

Thorax brown with a light gray bloom; pseudosutural fovea large, prominent, black; tuberculate pits rather far cephalad, black; scutum and postnotum grayish, scutellum rich brown. Pleuræ pale brownish with a sparse gray bloom. Halteres short, yellowish.

Legs, coxæ and trochanters yellowish; fore and middle trochanters long and slender, the hind trochanter shorter; femora and tibiæ yellowish brown becoming browner on the tarsi.

[14] Osten Sacken, Smithson. Miscell. Coll., vol. 11, No. 256 (1873).

Wings subhyaline; a brown stigmal spot; veins pale brownish yellow. Venation (see Plate IX, figure 6) almost as in *R* (*Sacandaga*) *flava* Alex.[15] but the cross-vein *m*, here, is much longer.

Abdominal tergites yellowish brown, sternites paler, yellowish.

Holotype, male, Coroico, Bolivia, in the Hungarian National Museum.

From *R.* (*R.*) *ostensackeni* Skuse[16] (Australia) it differs in the much greater length of the antennae which is here more than four times as long as the body, in *ostensackeni* not quite twice as long. From the members of the subgenus *Sacandaga*, it differs in the elongate male antennae. The discovery of a member of this subgenus in the New World is of exceptional interest.

Genus **Lecteria** Osten Sacken.

1887. *Lecteria* Osten Sacken; Berl. Entomol. Zeitschr., vol. 31, p. 206.

Lecteria armillaris Fabr. [17]

One female from Espirito Santo, Brazil; one specimen, sex uncertain, from Callanga, Peru.

Lecteria abnormis sp. n. (Pl. IX, fig. 9.)

Tibiæ spurred; color grayish with a narrow dorsal brown median line extending from the head to the mesonotal scutellum; wings subhyaline with a brown costal margin; vein *R2* obliterated.

Sex, (?) (probably a ♀). Head and thorax, 4.5 mm.; wing, 12.8 mm. Rostrum and palpi dark brown; antennal segments 1 and 2 dull yellow, the first segment very long, the second very short, globular; flagellar segments brownish; front, vertex and occiput yellowish gray with a narrow dark brown median vitta originating beween the antennæ and running to the caudal margin.

Pronotum gray with a narrow dark brown median stripe. Mesonotal præscutum brownish, more grayish behind and on the sides, with a dark brown median line; scutum and scutellum light gray, the dark brown median vitta ending on the scutellum; postnotum gray. Pleuræ very light gray. Halteres dull yellow, the knob dark brown.

Legs, coxæ light gray, trochanters dull yellow, femora dull brownish yellow with a dark brown subapical ring close to the tip, tibiæ spurred, dull yellow, brown at the tip; tarsi brownish yellow, the apices of the segments darker, brown.

[15] Alexander, Ent. News, vol. 22, pp. 351, 352 (1911).
[16] Skuse, Proc. Linn. Soc. N. S. Wales, vol. 4, second series, p. 829, pl. 22, fig. 15 (1889).
[17] Fabricius, Syst. Antl., p. 26 (1805).

Wings subhyaline, cells *C* and *Sc* brown, veins brown. Venation (see Plate IX, figure 9) vein *R2* entirely obliterated and only two branches of the sector attain the margin.

Abdomen broken.

Holotype, Paraguay, Fiebrig, coll., in the Hungarian National Museum.

L. abnormis belongs to *Psaronius* Enderlein, if this be admitted as a valid genus or subgenus.

We have here a venational phenomenon which is comparable to that in the subgenus *Leiponeura* of *Gonomyia* Meigen, that is, the total obliteration of one of the branches of the radial sector. This condition is presaged by *L. obliterata* Alex.[18] (British Guiana) but in this new species the loss of *R2* is complete. In keys to the Tipulid tribes this would run down to the Antochini and students of the family should exercise care in the study of this interesting group of species.

Tribe 4—Limnophilini.

Genus **Limnophila** Macquart.

1834. *Limnophila* Macquart; Suit. à Bffon, vol. I, p. 95.

Limnophila kerteszi sp. n. (Pl. IX, fig. 10.)

Thorax grayish without distinct stripes; wings long and narrow with brown markings, these largest along the costal border.

Female.—Length, 8.8 mm.; abdomen, 7.6 mm.; wing, 8.6 mm. Rostrum and palpi very dark brown; antennæ dark brownish black; head grayish brown.

Thoracic præscutum yellowish brown without apparent stripes; scutum gray, the lobes dark brown; scutellum and postnotum light gray. Pleuræ brown with a dull gray bloom. Halteres long, very pale, almost whitish, the knob a little brown.

Legs, coxæ brownish, trochanters dull yellow, femora dull yellow with an indistinct brown subapical ring, tibiæ brown, tarsi brown.

Wings whitish with brown marks as follows: Cell *C* brown except the outer quarter; cell *Sc1* except the tip; a brown mark at the base of cell *R*, another at the origin of *Rs;* an irregular brown seam along the cord; a large brown blotch occupying the end of cell *R2* and the middle of cell *R3*; a rounded spot in the middle of cell *R5*; marks on the forks of veins, cross-veins and deflections of veins and at the ends of the longitudinal veins; gray clouds along the anal angle of the wing. Venation (see Plate IX, figure 10): *Sc2* longer than *Sc1*; *Rs* very long, straight in a line with *R2* plus 3; cell *M1* present.

[18] Alexander, Proc. U. S. Nat. Mus., vol. 44, No. 1966, p. 494, plate 68, figure 41 (1913).

Abdomen long, tergites dark brown; sternites dark brown on the basal third and along the sides; remainder of each segment yellow.

Holotype, female, Sao Paulo, Brazil, in the Hungarian National Museum.

Limnophila conspersa Enderlein.[19]

One female from Espirito Santo, Brazil. More properly referred to *Limnophila* than *Lecteria* or *Psaronius.*

Genus **Epiphragma** Osten Sacken.

1859. *Epiphragma* Osten Sacken; Proc. Acad. Nat. Sci, Phila., p. 238.

Epiphragma cordillerensis Alexander.[20]

One female, Callanga, Peru; one, sex uncertain, from San Antonio, Bolivia.

Tribe 5—Hexatomini.

Genus **Eriocera** Macquart.

1838. *Eriocera* Macquart; Dipt. Exot., vol. I, pt. I, p. 74.

Eriocera perdecora sp. n. (Pl. IX, fig. 11.)

Head black; thoracic dorsum reddish; abdomen black; wings brown with a broad yellow cross band and yellowish anal cells.

Female.—Length, about 18.5 mm.; wing, 14.4 mm. Rostrum and palpi black; antennæ black; head black.

Pronotum black; mesonotum entirely light orange-yellow, the extreme lateral margin of the sclerites dark brown. Pleuræ dark brownish black. Halteres black.

Legs, coxæ and trochanters dark brown; femora brown, darker at the tip; tibiæ and tarsi dark brown; middle and hind femora with the basal half brighter, brownish yellow.

Wings dark brown, cells *C* and *Sc* yellow; a broad yellow band across the wing mostly before the cord; anal cells largely yellowish. Venation, see Plate IX figure 11.

Abdominal tergites dark brownish black, the last segments more reddish, valves of the ovipositor dark brown; sternites, basal segments a little brighter, the last segment reddish.

Holotype, female, Callanga, Peru, in the Hungarian National Museum.

In my key to the Neotropical *Eriocerae* (Psyche, vol. 21, pp. 34-37. 1914.) *perdecora* would run down to the couplet con-

[19] Enderlein, Zool. Jahrbuch, vol. 32, pt. 1, pp. 49, 50 (fig. D1) (1912). (as *Dactylolabis*).

[20] Alexander, Journ. N. Y. Ent. Soc., vol. 21, pp. 202, 203, pl. 5, fig. 8 (1913).

taining *braconides* End.[21] and *magnifica* Alex.[22], species with the head black. It differs from both of these species and from all other banded winged species, in its reddish thoracic dorsum.

Eriocera sublima sp. n. (Pl. IX, fig. 12.)

Head red; thorax black; abdomen black, the last segment orange; wings dark brown with a very narrow white cross band at the cord.

Female.—Length, 13.2 mm.; wing, 11.4 mm. Rostrum and palpi dark brown; antennæ with the scapal segments deep orange-red, flagellar segments dark brown; front, vertex and occiput fiery orange, the genæ darker.

Thorax dark brownish black, the mesonotum without well defined stripes. Halteres black.

Legs very dark brownish black, the tips of the tibiæ and the tarsi much paler, light brown.

Wings dark brown, the alar band white and very narrow, of about the same width as the cell *1stM2*; anal cells of the wing scarcely paler. Venation, see Plate IX, figure 12.

Abdominal segments dark brown, the last segment abruptly fiery orange.

Holotype, female, Minas Geraes, Brazil, 1897. Ex Coll. Fruhstorfer, in the Hungarian National Museum.

This species differs from all of the forms with banded wings in the very narrow, white alar band, and in its very dark brownish coloration.

Eriocera chrysoptera Walker. (Pl. IX, fig. 13.)

1856. *Limnobia chrysoptera* Walker; Ins. Saunders, vol. 1, Dipt., p. 438.

1902. *L. chrysoptera* Kertesz; Cat. Dipt., vol. 2, p. 171.

1913. *Eriocera chrysoptera* Alexander; Proc. U. S. Nat. Mus.; vol. 44, No. 1966, p. 490.

1914. *Eriocera chrysoptera* Alexander; Psyche, vol. 21, p. 37.

Female.—Length, 18.8 mm.; wing, 13.6 mm. Rostrum, palpi, antennæ and head very deep black.

Thorax black. Halteres short, black.

Legs, coxæ and trochanters black, basal portion of femora dark brownish black, this dark base narrowest on the fore legs, broadest on the hind legs where it covers almost one-third of the segment, tip of femora black, the middle portion bright yellow; tibiæ and tarsi very dark brown.

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[21] Enderlin, Zool. Jahrb., vol. 32, pt. 1, p. 47, fig. *B*1 (1912).

[22] Alexander, Psyche, vol. 21, pp. 37, 38; pl. 4, fig. 7 (1914).

Wings bright golden yellow, the anal cells gray; tip of the wing from the cord outward dark brown. Venation. see Plate IX, figure 13. Abdomen black.

Two specimens, one a female, one with the abdomen broken, from Coroico, Bolivia. I have but little doubt that this is Walker's *chrysoptera;* the type in the British Museum has lost all the legs, which are quite distinctive in this species.

Eriocera ohausiana Enderlein.

1912. *Eriocera ohausiana* Enderlein; Zool. Jahrb., vol. 32, pt. 1, pp. 45, 46, fig. A1.

1913. *Eriocera ohausiana* Alexander; Proc. U. S. Nat. Mus., vol. 44, No. 1966, p. 490.

1914. *Eriocera ohausiana* Alexander; Psyche, vol. 21, p. 36.

One male, Sierra, San Lorenzo, Colombia; Ujhelyi, coll. One male, one female, Callanga, Peru. One female from Songo, Bolivia. One female from Coroico, Bolivia.

These specimens vary much in intensity of the wing-pattern and in coloration, but I cannot find characters which will justify specific separation. The two females from Bolivia lack the dark femoral apices and have the abdominal tergites 5-7 blackish, the wing much more uniform in coloration, etc. The female from Peru has the legs dark brown and lacks black coloration on the abdomen. I have retained one male, one female, for my collection.

EXPLANATION OF PLATE IX.

Figure 1. Hypopygium of *Molophilus taurus* sp. n.; ventral apical appendage from beneath.

Figure 2. Hypopygium of *M. flavidus* sp. n.; ventral apical appendage from beneath.

Figure 3. Hypopygium of *M. guatemalensis* Alexander; ventral apical appendage from beneath.

Figure 4. Hypopygium of *M. sagittarius* sp. n.; ventral apical appendage from beneath.

Figure 5. Wing of *Sigmatomera occulta* sp. n.

Figure 6. Wing of *Rhabdomastix illudens* sp. n.

Figure 7. Wing of *Gnophomyia pervicax* sp. n.

Figure 8. Wing of *G. maestitia* sp. n.

Figure 9. Wing of *Lecteria abnormis* sp. n.

Figure 10. Wing of *Limnophila kerteszi* sp. n.

Figure 11. Wing of *Eriocera perdecora* sp. n.

Figure 12. Wing of *E. sublima* sp. n.

Figure 13. Wing of *E. chrysoptera* Walker.

On the Genus Phoetalia of Authors (Orthoptera, Blattidae, Epilamprinae).

By James A. G. Rehn and Morgan Hebard.

In 1875 Stål erected the genus *Phoetalia,* giving *Nauph. laevigata* P. B. as type, which species is now known to be a member of the genus *Nyctibora.* Thus *Phoetalia* falls into the synonymy under *Nyctibora.* The difficulty was caused by Stål really having material belonging to the genus at present under discussion, but confusing the species with the very different *laevigata* of Beauvois as other authors had already done. We here propose the name *Wattenwyliella* for the genus which has been known as *Phoetalia* by Kirby, Rehn and Hebard and Caudell and as *Phaetalia* by Shelford, and we select *Nauphoeta pallida* of Brunner as the type. The genus includes another species, *Nauphoeta circumvagans* of Burmeister.

Wattenwyliella pallida (Brunner).

1839. *Blatta laevigata* Serville (not of Beauvois, 1805), Ins. Orth., p. 98, No. 21. (Cuba; Martinique.)

1857. *Blatta* (*Panchlora*) *laevigata* Guerin (not of Beauvois, 1805), Ramon de la Sagra, Hist. Cuba, Ins., p. 344. (Cuba.)

1864. *Blatta laevigata* Saussure (not of Beauvois, 1805), Mem. Mex. Blatt., p. 99, pl. 1, fig. 16. (Cuba; Martinique; San Domingo.)

1865. *Nauphoeta pallida* Brunner, Syst. Blatt., p. 286. (Cuba.)

1868. *Nauphoeta marginalis* Walker, Cat. Blatt. Br. Mus., p. 41, no. 14. (——?)

1870. *Nauphoeta laevigata* Saussure (not *Blatta laevigata* of Beauvois, 1805), Miss. Sci. Mex., Orth., p. 104. (Antilles; Mexico.)

1893. *Nauphoeta laevigata* Saussure and Pictet (not *Blatta laevigata* of Beauvois, 1805), Biol. Cent.-Amer., Orth., I, p. 101. (Mexico; Guatemala; Cuba; San Domingo.)

1904. *Phoetalia pallida* Kirby, Synon. Cat. Orth., I, p. 116. (West Indies; Brazil; Teneriffe, Canary Islands.)

1910. *Phoetalia laevigata* Rehn and Hebard (not *Blatta laevigata* of Beauvois, 1805), Ent. News, xxi, p. 103. (Key Largo, Florida.)

1910. *P*(*haetalia*) *laevigata* Shelford (not *Blatta laevigata* of Beauvois, 1805), Gen. Ins., Fasc. 101, Epilamprinae, p. 8.

1912. *Phoetalia laevigata* Rehn and Hebard (not *Blatta laevigata* of Beauvois, 1805), Proc. Acad. Nat. Sci., Phila., 1912, p. 240. (Key Largo, Florida.)

1913. *Phoetalia laevigata* Caudell (not *Blatta laevigata* of Beauvois, 1805), Proc. U. S. Nat. Mus., xliv, p. 603.

Saussure's description and figure of this species, in 1864, as *Blatta laevigata* Palis. Beauv., are very satisfactory though the colors of the figure are too brilliant.

Brunner, in 1865, misidentified specimens of *circumvagans* as the present species, hence his redescription and use of the name *pallida* for the present insect, which at that time was generally considered to be *Blatta laevigata*.

Wattenwyliella circumvagans (Burmeister).

1838. *N(auphoeta) circumvagans* Burmeister, Handb. Ent,. II, p. 508. (Santa Catherina, Brazil; Teneriffe, Canary Islands; around the world in ships.)

1858. *Blatta marginicollis* Stål, Eugenie's Resa, Ins., p. 307. (Madeira.)

1865. *N(auphoeta) laevigata* Brunner (not *Blatta laevigata* of Beauvois, 1805), Syst. Blatt., p. 285, pl. vii, figs. 33a-e. (Madeira.)

1910. *P(haetalia) circumvagans* Shelford, Gen. Ins., Fasc. 101, Epilamprinae, p. 8.

Brunner's description and figures of the present species, as *N. laevigata* Pal., are by far the most explicit and satisfactory.

An Adventure While Collecting Bees in Guatemala.*

By WILMATTE PORTER COCKERELL, Boulder, Colorado.

To the wise old saw: Blessed is the man who has a hobby, I would add, and many times blessed the woman. When I think of the good things I might have missed if I had not been collecting bees, I marvel that all travelers do not turn natur-

[*Mrs. Cockerell was just a month in Guatemala. So far the following new things have been described from her collections. Many of the things have not yet been worked up. I give only the things actually published: 1 tree (*Phyllocarpus septentrionalis* Donn. Smith), 1 snail (*Thysanophora cockerellae* Pilsbry), 5 gregarines (descr. by Ellis), 4 Ichneumonidae (3 descr. by Viereck, 1 by Ckll.), 1 Chalcidid (descr. by Ckll.), 1 n. g. and sp. Orthoptera (descr. by Ckll.), 36 spp. and 11 subspp. of bees. (One additional bee has been sent for publication, and a paper by Rohwer with numerous new wasps awaits publication.)—T. D. A. C.]

alists or perhaps archeologists, or bibliophiles, for even the collection of idols or old books has elements not to be despised.

My net was always a letter of introduction, for there are naturalists the world over. The first friend to be thus bagged was a young engineer who was taking a job on the great canal only because he wanted to make collections of tropical beetles, and the last was an engineer coming home from South America, the grandson of a celebrated nature writer, and himself an ardent student of color photography. How much these young men added to my going and coming with tales of strange lands and distant peoples! And curiously, the first person I met at the port was a woman, who had lived for years in the little republic and who had an inexhaustible fund of animal and plant lore. Then there were the others, full of kindness to the lady "bug-catcher," but the most gracious of all the friend who took me to her house and guarded my time so that every moment might count for the bees or bee notes of that wonderful tropical land.

Once, however, I found myself suspected and arrested; my net a badge of some strange foreign magic.

We drove from Guatemala City to Antigua, and though it is a scant thirty miles we were the most of the day on the road. It was simply maddening to sit in the carriage and see all sorts of new and wonderful plants growing by the roadside, and every little while a great bee would crawl from its nest in the bank by the road and add greatly to my unhappiness. So when we started home I determined to walk ahead of the carriage, and do some collecting. The carriage was ordered for ten-thirty, and I planned to start at six if possible. At five I went into the dining room hoping to get some breakfast, but the funny waitress, a French negro ladrina, declared there was no breakfast for an hour and held up her brown finger to emphasize the information, but a man was eating in the corner and I appealed to him as he spoke English. No, he said, it was not yet breakfast time; the bread had not yet been brought in (it is usually baked by the Indians and brought in by the basket load), and the milk was still at

the finca (farm). This all sounded reasonable enough if the man had not been eating, and so I inquired: "If one, why not another." For a moment he seemed confused, but with a wave of the hand and a bow (the Spanish way of dismissing a troublesome question) he answered: "It is too early for ladies."

I felt that I would better go hungry than to insist in the face of such gallant sentiments but my bibliophile friend appeared. She knows the ways of the country, the language, and best of all has a fund of compliments that even put a Spanish gentleman to shame, and like magic the breakfast appeared—oranges, bread, hot milk, and even pan dulce (sweet biscuit.)

The stars were still shining as I walked through the long quiet streets, lined with adobe houses, all one-story, and rich in Moorish tints of yellow and pink and azure blue. The sun was only just warming up the hillsides when I came into the open country. The road was cut through the hills and on both sides the land rose quickly into a rough foothill region, sparsely covered with trees and flowery bushes. On the first rise there were scattered pines, and in the direction of the city I could see the perfect cones of the volcanoes. The air was fresh and invigorating, and I spent a wonderful three hours on that warm hillside. There was a bush covered with blossoms that looked like our red pentstemons literally full of humming birds and a tree, which for want of a better name, I called the Senecio tree, swarming with bees; and there were birds very like our Baltimore Oriole, but with heavier bills, eating the berries from a Solanum. On the larger trees, I could hear the insistent drumming of woodpeckers, and occasionally I caught a glimpse of one as it flew from tree to tree, a brown-speckled bird with a gleam of azure when it flew. Indian men and women were preparing bundles of wood and passed me now and then with a "Buenos dias, Senora." A small boy came down from the pine ridge to try his English upon me. He had once had a little English, at a school in Guatemala City, at least so I gathered, and he

knew half dozen English phrases. "Are you American or English? Is your President Mr. Roosevelt? Are you married? How old are you?" When I satisfied him upon all these important questions, and he had helped me catch a large butterfly, and accepted with great thanks $2.00 (10 cents) he went back to his wood cutting. A white-throated humming bird came and settled on my net, and every few minutes I added a new species of bee to my collection.

Much too soon it was eleven o'clock, and I felt I must get back near enough to the road to see the carriage. Unfortunately, when I could see the road I could be seen, and, as many Indians were passing along, I found myself inspected by them. I tried to go on with my collecting as though I was quite accustomed to work with fifty Indians looking on. In the main, I did not think them unfriendly, though I was told that they do not like foreigners. I saw no white people and I understood that there were very few in that part of the country. An Indian came and looked over the fence and asked me what I was doing. I explained in Spanish, which I had carefully learned by heart, that I caught butterflies and flies, mariposas and moscas, and I hoped it was permitted. At that he began shaking his stick in my face, and talking volumes of Spanish, none of which I understood. I tried to pretend that I took no further interest in him and went on with my collecting, but when he began to crawl under the fence I crawled out. I could argue the case better on the road, and I expected the carriage every minute. He came up near to me waving his stick, and when I seemed not to be taking the matter as seriously as he intended, he called and a man with a gun appeared, possibly a soldier. He was the funniest sight I ever expect to see—his gun was a most curious old-fashioned sort; he was barefooted, of course, and had on trousers made of flour sacks with "Pillsbury's Best" quite conspicuous on one leg. He said that I was arrested and I laughed—the flour sack trousers were so very funny! I explained again what I was doing, and that I was a friend of the priest, who would be

angry if I were molested. This finished the soldier person, and he disappeared amid much talking and great shakings of the stick by the first officer or brigand.

Still no sound of wheels, but a pleasant-faced Indian woman came along carrying a huge basket on her head, a baby in a blanket on her back and two chickens in her hands. I told her as best I could that I was afraid of the man, and she smiled, let me carry the chickens, and we trotted along together, followed by the militant brigand. But my guide's road turned off from the main road, and I was again alone with the barefooted, blue-calico-dressed officer. Fortunately for my peace of mind, I soon came to a small adobe house, a cantina where all the Indians stopped for a drink. My captor said that I was not to stop, but I stopped. The Indian woman who sold the drinks told me that I must do as the man said—all this in Spanish, so that I mostly guessed at what was said. The officer said in a loud voice that I must go on, *pronto vamoose*. I knew those words, and I sat a little more firmly on the box, and a dozen or more Indians gathered about me, and a little five-year-old girl who had left her burden at the door put her hand in mine with some soft Spanish words. A pleasant-faced Indian began to argue with the officer, I thought in my behalf, and all the time the Indians came in and out of the little room, getting, I am afraid, a little more white eye than was good for them and all stopping to regard the strange Inglese lady. Ten rather anxious minutes went by, and my captor was making further violent efforts with his stick when I heard our driver's insistent "Mula! Mula!" Never will mules look so good to me again as those five that dashed around the corner and drew up with a flourish in front of the little cantina.

The Gualtemaltecan's attitude changed amazingly when he saw five other Americans. He insisted that he thought I was poisoning the plants, but so differently did he feel that he went out and brought a beautiful chrysalis, a souvenir of the occasion, perhaps.

A new Coccid Infesting Citrus Trees in California (Hemip.).

By Roy E. Campbell, Berkeley, California.

In the early part of 1909 student inspectors from Pomona College discovered a soft scale on citrus trees near Claremont, California, which appeared to be different from the common *Coccus hesperidum* Linn. The insect was first identified as *Coccus longulus* Doug., but was later changed to *Coccus elongatus* Sign. Recent investigations by the writer indicate that the scale is a new species.

The insects were observed in no great numbers, but have since become considerably more abundant, and have also been found in a number of other localities.

Coccus citricola n. sp.

Adult Female.—Length, 3 to 6 mm.; width, 2 to 3 mm.; general color, dull gray, interspersed with numerous irregular yellowish spots. Body elongate, ends broadly rounded. Dorsum with small blotches forming a distinct irregular yellow stripe extending from anal plates almost to anterior margin. Two similar less distinct submedian stripes parallel with margin, and occasionally two indistinct submarginal stripes. A yellowish band of the same character extends around the margin. Antennae regularly eight-jointed, occasionally a specimen has seven joints in one and eight in the other, rarely seven in both. Average and most common formula 8-3-1(4-5)-2-6-7. The eighth is practically invariably the longest joint, sixth and seventh the shortest, while the rest vary considerably. No hairs on third and fourth joints. Stigmatic cleft small, with three spines, median spine curved and three times as long as others. Marginal hairs numerous, simple, pointed. Submarginal tubercles very few, or wanting. Anal ring with six long pointed hairs, plates of the anal operculum with the base slightly longer than the outer edge. Four fringe setae in groups of two across anal plates, with the lateral setae of each group longer than the mesal. Three subapical and four apical setae on each plate. Tibia one-third shorter than femur and very slightly longer than tarsus.

Adult Male.—Length, 1 mm.; body width, .28 mm.; style, .25 mm.; antennae, .57 mm.; wing length, .17 mm.; wing width, .05 mm. Color, dark honey yellow, head and thorax slightly darker. Anterior pair of upper eyes brownish, small. Posterior pair of upper eyes dark brown and much larger than anterior pair. Ventral pair dark brown,

equal in size to posterior upper pair. Antennae yellowish, ten-jointed. First joint short, cylindrical, second a little longer but thick and oval, third a little shorter and slender, enlarged toward tip. Fourth, fifth, sixth and seventh subequal, slender, each about twice as long as third; eighth, ninth and tenth subequal, the three being not quite as long as sixth and seventh together; eighth and ninth distinctly swelled, tenth slightly. Three long knobbed hairs at end of tenth joint. All joints except first and second with numerous curved hairs. Legs yellow, with a slightly brownish tinge, quite hairy. Style, lemon yellow, tapering sharply at tip. Wings hyaline, with a microscopic pubescence, heavier at veins. Veins yellowish.

Male Puparium.—Length, 1.7 mm.; width, .7 mm. Glassy white surface, rounded. Two lines, beginning at the anal opening diverge upward for a short distance and then proceed with only a slight divergence to near the anterior end, when they diverge outward again. Surface of the coronet slightly more convex. A quarter of the distance from the anterior end, where diverging lines begin to run almost parallel, is a cross carina; another carina crosses the coronet at a little more than a quarter of the distance from posterior end. Just back of this carina are two spiracular channels, from coronet to each margin. Half way between the two cross carinae are the other two spiracular channels, running from coronet to margin. There is a triangular space for the anal operculum and a cleft from this to the margin.

Egg.—Length, .21 to .24 mm.; width, .12 to .15 mm. Color, lemon yellow; oval shaped. When first deposited, light yellow, changing to a slightly darker tinge before hatching. Eyes show up as minute black spots.

Larva.—Length, .25 to .3 mm.; width, .15 to .19 mm.; length of spines, .1 to .12 mm. Antennae, .07 mm. Color, light yellow, eyes minute black spots, body flat and oval, slightly broader and more rounded at anterior end. Anal spines slightly less than half the length of the body. Antennae six-jointed. Eggs and larva are more yellowish than *C. hesperidum.*

Habitat, as far as known, on the leaves and twigs of citrus trees only. The young scales settle mostly on the leaves and when about half grown migrate to the small twigs. No scales have been found on twigs larger than one half inch in diameter. When the insects are abundant, and such is usually the case, they are arranged on the twigs in a curiously imbricated manner which is quite characteristic. The infestations are largely confined to the lower half of the tree.

Distributed in Pomona, Claremont, Ontario, Cucamonga, Colton, Highlands, Redlands and Riverside in Southern California; in Tulare and Fresno Counties in the lower San Joaquin Valley and slight infestations in Sacramento, Yuba City and Marysville in the Sacramento Valley. It is very probable that the insect has existed in California for some time and has passed unnoticed, or what is more likely, has been confused with and identified as *Coccus hesperidum* Linn., which it closely resembles.

Comparison of Coccus citricola n. sp. *and two related species.*

Coccus hesperidum	*Coccus citricola*	*Coccus elongatus*
Antennae 7-jointed	Antennae 8-jointed	Antennae 8-jointed
Formula	Formula	Formulae
(3-7)-4-2-1-6-5	8-3-1-4-5-2-6-7	3-(2-5)-(1-4-8)-6-7 3-5-(2-4)-(6-8)-7
3rd joint longest	8th joint longest	3rd joint longest
4th and 7th almost as long		8th joint one of shortest
4th joint longer than 5th	4th joint usually slightly longer than 5th	5th joint quite constantly longer than 4th
Hairs of anal ring 8, 2 fringe, 2 subapical and 4 apical setae on each plate	Hairs of anal ring 6, 2 fringe, 3 subapical and 4 apical setae on each plate	Hairs of anal ring 8, 4 fringe, 4 subapical, 1 discal and 3 apical setae on each plate
Dorsum with no longitudinal stripes	Dorsum with distinct irregular yellow stripes	Dorsum with no longitudinal stripes
Appearance, yellow minutely specked with brown spots	Appearance, dull gray interspersed with irregular yellow spots	Appearance, dingy pale yellowish gray
4 or 5 submarginal tubercles on a side	Submarginal tubercles very few or wanting	Submarginal tubercles large and numerous
3 or 4 generations a year	One generation a year	
Infests young trees, or a single branch of a single large tree in an orchard	Infests large trees uniformly and most of the trees in an orchard	
Host plants Oleander, Camellia Citrus, Holly Ivy, Laurel Jasmine, Myrtle Phlox and many others	Host plants Citrus trees	Host plants Acacia, Cherimoya Ficus, Lantana Citrus, Palms Ferns, Cherry, Laurel and many others

September Dragonflies about Mesa, Arizona (Odon.).

By E. B. Williamson, Bluffton, Indiana.

In September, 1912, Mr. B. J. Rainey collected dragon flies extensively about Mesa, Arizona. All species seen by him, with but one exception, were captured, and the following list is probably practically complete for this section at the season when he collected. He kindly turned the entire collection of 588 specimens over to me, and furnished the notes on the habits of different species.

Collections were made at the following locations:

Chandler, 9 miles south of Mesa, desert country with irrigating ditches.

Granite Reef Dam, on Salt River, 9 miles above Mesa, collected along river, up-stream from dam.

Tempe, 6 miles west of Mesa, collected along irrigating ditches.

Mesa is on Salt River. On September 9 he collected along an irrigating ditch, 12 feet wide, 1 mile south and 3 miles east of Mesa.

Hetaerina americana. Common everywhere about swift or slow water: on grass and bushes over water. Sept. 11, south of Mesa; Sept. 12, Eastern Canal, Mesa; Sept. 12, Tempe; Sept. 15 and 22, Granite Reef Dam; Sept. 16, east of Mesa; Sept. 18, Salt River, Mesa: 56 ♂ and 42 ♀.

Argia moesta. Sept. 10, Mesa; Sept. 15 and 22, Granite Reef Dam: 2 ♂ and 6 ♀.

Argia sedula. Associated with *Hetaerina americana.* Sept. 8, along ditch north of Mesa; Sept. 10, 16 and 18, Mesa; Sept. 15 and 22, Granite Reef Dam: 80 ♂ and 5 ♀.

Argia pallens. On islands in Salt River, Mesa, Sept. 18, in grass back from the water; Sept. 22, Granite Reef Dam: 5 ♂ and 1 ♀.

Enallagma civile. Common along irrigating ditches, resting on twigs in water or near water. Sept. 9 and 10, Mesa; Sept, 8, along ditch north of Mesa; Sept. 11, south of Mesa; Sept. 12, Tempe; Sept. 16, east of Mesa: 45 ♂ and 10 ♀.

Enallagma praevarum. August 31, Sept. 18 and 22, Mesa: 10 ♂ and 2 ♀.

Telebasis salva. In grass and on twigs in water. Sept. 8, 9, 10, 11, 16 and 18, Mesa, Salt River, north, east, southeast and south of Mesa; Sept. 17, Chandler: 112 ♂ and 19 ♀.

Ischnura denticollis. Sept. 9, Mesa: 1 ♂.

Ischnura demorsa. Sept. 9, 10, 11, 16 and 18, Mesa, Salt River and east of Mesa: 21 ♂ and 36 ♀.

Ischnura barberi. Sept, 8, 9 and 11, Mesa and south of Mesa; Sept. 12, Tempe: 4 ♂ and 1 ♀. All Ischnuras were taken in grass and on twigs in water; flight low.

Progomphus borealis. All were taken away from water 10-40 feet; were resting on tips of twigs, often with abdomen elevated, and none were seen resting on the ground. Sept. 8 and 18, Salt River, Mesa, and desert north of Mesa; Sept. 15 and 22, Granite Reef Dam: 4 ♂ and 6 ♀.

Erpetogomphus compositus. All were resting on dirt banks or broad leaves, always near water; flight swift and straight. Sept. 12, south of Tempe, along canal; Sept. 18, Salt River, Mesa; Sept. 22, Granite Reef Dam: 6 ♂ and 2 ♀.

Anax junius. Flying along ditches in bright sunlight, most numerous during the middle of the day; associated with the next species. Sept. 9, 10, 11 and 13, Mesa and south and southeast of Mesa along canal: 10 ♂ and 2 ♀.

Aeshna multicolor. Associated with the preceding and of similar habits. Aug. 31 and Sept. 9, Mesa and southeast of Mesa along a ditch: 11 ♂ and 2 ♀.

Libellula saturata. Often resting on twigs among dead cacti. Sept. 8, 11 and 18, Mesa and south of Mesa; Sept. 22, Granite Reef Dam: 3 ♂ and 3 ♀.

Libellula comanche. Flying with Aeshnines, only one seen. "Basal coloring of wings much reduced (wanting), c. f. Ent. News XVIII, p. 202; distal brown of stigma reduced (scarcely one-fifth) —Calvert in letter. Sept 9, southeast of Mesa along ditch, 1 ♂.

Orthemis ferruginea. Usually resting on dead twigs. Sept. 3, 8, 9 and 10, Mesa, along road north of Mesa, southeast of Mesa along ditch; Sept. 17, Chandler: 13 ♂ and 4 ♀.

Perithemis intensa. On twigs in still water and back and forth between resting places. Sept. 3, 8, 9, 10, 11 and 16, Mesa, north, east and south of Mesa; Sept. 17, Chandler: 41 ♂.

Erythemis collocata. About small ponds. Sept. 8, 10, 11, 16 and 18, Mesa, and north, east and south of Mesa; Sept. 17, Chandler: 12 ♂ and 5 ♀.

Sympetrum corruptum. Sept. 8 and 11, north and south of Mesa; Sept. 15, Granite Reef Dam: 3 ♂ and 1 ♀.

Pantala flavescens. Sept. 11, south of Mesa, 1 ♂.

ENTOMOLOGICAL NEWS.

PHILADELPHIA, PA., MAY, 1914.

The Desirability of a Bibliographical Dictionary of Entomologists*.

Fifteen years ago, in locating and studying Burmeister's types of Odonata, it was desirable, as it is in all similar pieces of work, to ascertain the sources from which he had obtained his material, the original collectors, and the dates of the collecting, the successive owners into whose hands the specimens had passed and their fate subsequent to their examination and description by Burmeister. Such of this information as was obtained came after a protracted search through the few early references afforded by Hagen's *Bibliotheca Entomologica* and by papers by authors later than Burmeister which treated of any of the species included in his *Handbuch* of 1839.

Five years ago, in preparing an annotated list of the localities and collectors of Odonata in Mexico and Central America, for the introduction to the Neuroptera volume of the *Biologia Centrali-Americana,* no precise information was acquired as to the parts of those countries visited by such men as Deppe or McNiel, and even in the case of de Saussure it was not complete.

It is not only as to collectors and fate of collected material that data are often needed. It is frequently highly desirable to know when, where and under what conditions the describers, the monographers, the systematists did their work, since such information throws light, in many cases, on the results of their labors and on the views which they adopted. At this present time we wish to know something of the personal history of Brackenridge Clemens, a pioneer in the study of the

*Read at the Atlanta meeting of the Entomological Society of America, December 30, 1913.

American Microlepidoptera. We know that he died in January, 1867, but the *Zoological Record* and the American entomological and zoological journals of that and the immediately following years have, so far, not furnished any references to the existence of anything more than a very brief biographical sketch. In searching for such a reference, we came across a short account of the Nicaraguan expedition of McNiel, of which we were ignorant in 1908 when we most needed it.

These concrete examples show the desirability of a bibliographical dictionary of entomologists, not merely as a matter of historical interest, but as an important guide to the comprehension of the work of our predecessors. By entomologists we mean not only those who have published on insects but also all who have collected or formed collections, including under the latter head public museums.

Such a dictionary as we suggest should contain as far as possible, the following information under each entry:

1. The dates and places of birth and death.

2. The periods and places of activity as collector, writer, etc.

3. The sources of the material which the subject, if a writer, employed.

4. The subsequent fate of the subject's personal collections.

5. Especially and superlatively important, references to any published biographical notices, bibliographies and critical estimates of the subject, if a person. If a Museum, references to historical accounts of the institution, published lists of collections and types contained, etc.

On account of the interrelations of entomologists and different parts of the world, the scope of the dictionary should be world-wide.

We have *not* in contemplation the preparation of such a dictionary. The chief object of this paper is to call the attention of some one who is bibliographically inclined, and who has leisure on his hands, to a field which lies ready to be tilled. Such a philanthropic author must expect difficulty in finding a publisher for his book when the manuscript has been com-

pleted. To lessen this difficulty, the paragraph devoted to each entry should be as brief as possible, particularly where published information already exists and references to it can be given. This dictionary is conceived of as a work of reference, a guide to sources, not as a compilation of all that is known or may be gleaned from the existing literature.

The task of preparation is not a light one, to be accomplished in two or three years. It will require many years, access to large and complete libraries and the exercise of wise judgment to produce a satisfactory result along the lines indicated. It will be worth the doing, however, and therefore is brought to the attention of entomologists.

Notes and News

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

Ambulyx strigilis L. in Florida (Lep.).

Mr. Morgan Hebard has presented to the Academy of Natural Sciences of Philadelphia a specimen of *Ambulyx strigilis* Linn., taken at Miami, Dade Co., Florida, February 2, 1899. It would be of interest to know whether this species is a visitor to Florida or a resident there. This sphinx moth is found in the West Indies and South America.—Henry Skinner.

Side Lights on Entomology.

"To an outsider it looks as though the subject of entomology were still largely in the taxonomic stage of development, which is not to be wondered at when one recalls that over half the species of animals are insects."—M. A. Chrysler, Professor of Botany, University of Maine, in *Science* for March 13, 1914, page 377.

". . . what has chiefly contributed to the progress of Odonatology during the period under review [1895-1912] is the application of the developmental method as a means of tracing the origin, and so comprehending the significance, of the various parts of the Odonate's body. If the application of this method to these insects seems to students of other animal classes to have been slow, the excuse must be the great number of insect forms, the consequent great mass of detail to be mentally digested, and the relatively smaller number of investigators." —P. P. Calvert, in *Transactions, 2nd International Congress of Entomology,* Oxford, 1912, page 157, Oct. 14, 1913.

European Heteroptera Alleged to Occur in the United States.

For a long time past, in fact for nearly 10 years, someone or other, myself included, "following copy," has gravely listed certain Heteroptera as being found in the United States. I have endeavored by word of mouth and by letter to find out definitely just *what* was known, but fruitlessly. Finally I concocted the exchange notice which has appeared lately in the NEWS, stating my wants of *European* Hemiptera said to occur in the United States, and naming *Dasycoris pilicornis* Burmeister, *Gastrodes ferrugineus* Linné, *Gonianotus marginepunctatus* Wolff and *Microtoma atrata* Goeze. I met with exactly the success I anticipated, exactly nothing. Incidentally, the solidarity of my co-workers in Hemiptera was revealed. They have all maintained a dignified silence! Now, I emphatically state that any entomologist who perpetrates (and perpetuates) these errors displays a lack of familiarity with his subject. In this matter I'm from Mizzoura; you've got to show me. You've got to show me *Cymus claviculus* Hahn, and *Sphagisticus rufipes* Stål; also *Notonecta glauca* Linné and *Emblethis arenarius* Fieb.; *Cimex* (or *Clinocoris*) *hirundinis* Jenyns and *pipistrelli* Jenyns; *Ischnorhynchus resedae* Panz., all to be taken within the borders of the United States. They gravely appear in our latest "Catalogue of the Nearctic Hemiptera Heteroptera," so I would much like to see them. Like Mrs. Harris, I think "there ain't no sich persons." Now I repudiate them and all their works. In my opinion they have never been taken and in all likelihood never will be taken in this country. Therefore, they have no legitimate place in our Catalogues, and our catalogue makers should expurge them from the record.—J. R. DE LA TORRE BUENO, White Plains, New York.

A Spider Swathing Mice (Aran.).

[The following letter by a non-entomologist seems of sufficient interest and value to warrant its publication in the NEWS.—A. N. CAUDELL.]

"An unusual thing and one that will be doubted by many occurred at my home near Upper Marlboro, Maryland, a few days ago. A member of the family was attracted by a slight noise and upon investigating found under the sideboard a young mouse making frantic efforts to free itself from invisible bonds. It resulted that a spider, scarcely larger than a black ant, had caught the mouse and was performing an engineering feat that was truly interesting. This was the task of lifting the mouse from the floor to the bottom of the sideboard, a distance of about eight inches. The rodent kicked almost constantly during the operation, which lasted a little over three hours. The webs were then wiped away and to our surprise a second young mouse, dead and completely swathed in web, was found."—(Signed) GUY CLAGGET, Keokuk Farm, Upper Marlboro, Md.

Summer Work on Lake Erie.

The Lake Laboratory of the Ohio State University at Cedar Point, near Sandusky, Ohio, will be open to investigators free of charge from June 22 to Sept. 1, and for instruction (fee) from June 22 to July 31, 1914. The courses of study include one on Entomology by Mr. W. J. Kostir.

Do House Flies Hibernate? (Dip.).

Mr. E. E. Austen, in the *Entomologist's Monthly Magazine*, for February, 1914, page 39, under the above title calls attention to Dr. Henry Skinner's article under same title which appeared in the NEWS for July, 1913, page 304. Mr. Austen states that Dr. Skinner's assertion, "House flies pass the winter in the pupal stage and in no other way," is directly at variance with the results obtained in England by both Newstead and Jepson. However, he further says that in the recent investigations along this line by the Local Government Board, no house flies were found among those hibernating. To further investigation along such lines he makes an appeal to the readers of that journal to send collections of hibernating flies, accompanied with proper data, to the Local Government Board for determination. It will be interesting to learn the results of such a campaign.

Entomological Literature.

COMPILED BY E. T. CRESSON, JR., AND J. A. G. REHN.

Under the above head it is intended to note papers received at the Academy of Natural Sciences, of Philadelphia, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species, will be recorded. The numbers in **Heavy-Faced Type** refer to the journals, as numbered in the following list, in which the papers are published, and are all dated the current year unless otherwise noted, always excepting those appearing in the January and February issues of the News, which are generally dated the year previous.

All continued papers, with few exceptions, are recorded only at their first installments.

The records of systematic papers are all grouped at the end of each Order of which they treat, and are separated from the rest by a dash.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington.

2—Transactions, American Entomological Society, Philadelphia. **4**—The Canadian Entomologist. **6**—Journal, New York Entomological Society. **7**—U. S. Department of Agriculture, Bureau of Entomology, Washington. **8**—The Entomologist's Monthly Magazine, London. **9**—The Entomologist, London. **11**—Annals and Magazine of Natural History, London. **12**—Comptes Rendus, L'Academie des Sciences, Paris. **13**—Comptes Rendus, Societe de

Biologie, Paris. **18**—Ottawa Naturalist. **19**—Horae Societatis Entomologiae Rossicae. **22**—Zoologischer Anzeiger, Leipzig. **28**—Archives d'Anatomie Microscopique Paris. **35**—Annales, Societe Entomologique de Belgique. **40**—Societas Entomologica, Zurich. **49**—Annales Historico-Naturales Musei Nationalis Hungarici, Budapest. **50**—Proceedings of the U. S. National Museum. **74**—Naturwissenschaftliche Wochenschrift, Berlin. **79**—La Nature, Paris. **84**—Entomologische Rundschau. **86**—Annales, Societe Entomologique de France, Paris. **87**—Bulletin, Societe Entomologique de France, Paris. **89**—Zoologische Jahrbucher. Abteilung fur Anatomie und Ontogenie der Tiere, Jena. **92**—Zeitschrift fur wissenschaftliche Insektenbiologie. **102**—Proceedings of the Entomological Society of Washington. **116**—Zoological Bulletin, Boston. **119**—Archiv fur Naturgeschichte, Berlin. **166**—Internationale Entomologische Zeitschrift, Guben. **173**—Die Grossschmetterlinge der Erde, Fauna Americana, von A. Seitz, Stuttgart. **177**—Quarterly Journal of Microscopical Science, London. **184**—Journal of Experimental Zoology, Philadelphia. **186**—Journal of Economic Biology, London. **189**—Journal of Entomology and Zoology, Claremont, Calif. **191**—Natur. Halbmonatschrift fur alle Naturfreunde. **198**—Biological Bulletin, Marine Biological Laboratory, Woods Hole. **216**—Entomologische Zeitschrift, Frankfurt a. Main. **258**—Mitteilungen, Zoologischen Museum in Berlin. **285**—Nature-Study Review, Ithaca, N. Y. **368**—The Monthly Bulletin of the State Commission of Horticulture, Sacramento. **369**—Entomologische Mitteilungen, Berlin-Dahlem. **411**—Bulletin of the Brooklyn Entomological Society. **422**—Coleopterologische Rundschau, Wien. **462**—The Butterfly Farmer, Truckee, Cal.

GENERAL SUBJECT. **Dolleschall, H.**—Was uns die eichen bieten, **216**, xxvii, 297-8. **Doncaster, L.**—Chromosomes, heredity and sex: a review of the present state of the evidence with regard to the material basis of hereditary transmission and sex determination, **177**, lix, 487-522. **Felt, E. P.**—Cryptic coloration, **6**, xxi, 312. **Guenther, K.**—Eingeweidewurmer fleischfressender pflanzen, **191**, v, 181-183. **Hammar, A. G.**—Obituary notice, **102**, xvi, 8; **179**, vii, 155-7. **Hollande, A. C.**—Les Cerodecytes ou "Oenocytes" des insectes consideres ou point de vue biochimique, **28**, xvi, 1-66. **Kneidl, G.**—Der entomologe, **216**, xxvii, 291-2. **Kunze, R. E.**—Troubles of early collectors, **462**, i, 116. **Laven, L.**—Auge und sehen der insekten, **191**, v, 229-32 (cont.). **Newell, W.**—A simple and economical method of filing entomological correspondence, **179**, vii, 87-91. **Olivier, E.**

—Obituary notice of, **8,** 1914, 67. **Parrott, P. J.**—The growth and organization of applied entomology in the U. S., **179,** vii, 50-64. **Patterson, A. J.**—Some insect studies, **285,** x, 108-13. **Pierce & Morrill**—Notes on the entomology of the Arizona wild cotton, **102,** xvi, 14-23. **Popenoe, E. A.**—Obituary notice of, **179,** vii, 155. **Prell, H.**—Ueber einen fall von mimikry durch schutzstellung. **40,** xxix, 21-2. **Rudow, Dr.**—Biologische, nicht nur systematische sammlung, **166,** vii, 319-321 (cont.). **Sladen, F. W. L.**—Meeting of the entomological branch of the Ottawa Field Naturalists' Club, **18,** xxvii, 171-73. **Stellwaag, F.**—Neuere untersuchungen ueber den farbensinn der insekten, **74,** xiii, 161-64. **Uhler, P. R.**—Obituary notice with list of his writings, **102,** xvi, 1-7.

ARACHNIDA, ETC. Banks, N.—A new mite from Thurberia, **102,** xvi, 44. **Moles, M. L.**—A n. sp. of pseudoscorpion from Laguna Beach, California, **189,** vi, 41-4. **Oudemans, A. C.**—Acarologisches aus maulwurfsnestern, **119,** 1913; A, 8, 108-200 (cont.).

APTERA AND NEUROPTERA. Hilton, W. A.—The central ganglia of Xenylla, **189,** vi, 38-41. **Hood, J. D.**—On the proper generic names for certain Thysanoptera of economic importance, **102,** xvi, 34-44. **Howlett, F. M.**—A trap for thrips, **186,** ix, 21-23. **Schwermer, W.**—Beitrage zur biologie und anatomie von Perla marginata, **89,** xxxvii, 287-312.

Bacon, G.—Neanura gigantea in So. California, **189,** vi, 45-47. **Borner, C.**—Oncopodura, eine schuppentragende Isotomidae, **22,** xliii, 486-7. **Cholodkovsky**—Zur beurteilung der systematischen stellung der Puliciden, **22,** xliii, 555-58. **Hogg, W.**—The dragon fly (Note), **462,** i, 120-1. **Navas, L.**—New Neuroptera from the U. S., **411,** ix, 13-20. **Stitz, H.**—Mantispiden der sammlung des Berliner Museum, **258,** vii, 1-49. **Welch, P. S.**—The early stages of the life history of Polystoechotes punctatus, **411,** ix, 1-6.

ORTHOPTERA. Luvoni, A. B.—Notes on the metamorphosis of Phasgonura viridissima, **9,** 1914, 99-100. **Merle, R.**—Les insectes cataleptiques, **79,** xlii, 225-27.

Chopard, L.—Descriptions de Mantides Americains, **86,** lxxxii, 752-64. **Walker, E. M.**—A n. sp. of O. forming a new genus and family, **4,** 1914, 93-9.

HEMIPTERA. Girault, A. A.—Preliminary studies on the biology of the bed-bug (Cimex lectularius), **186,** ix, 27-45. **Glasgow, H.**—The gastric caeca and the caecal bacteria of the Heteroptera, **198, xxvi,** 101-170.

Bergroth, E.—Notes on some genera of Heteroptera, **35,** lviii, 23-8. **Cockerell, T. D. A.**—A new cotton scale from Panama, **179,** vii, 148. **Crawford, D. L.**—A contribution toward a monograph of the Homopterous insects of the family Delphacidae from No. and So. America, **50,** lxvi, 557-640. **Davidson, W. M.**—Plant-louse notes from California, **179,** vii, 127-136. **Essig, E. O.**—The mealy bugs of California, **368,** iii, 97-143. **King, G. B.**—Kermes lindingeri n. sp., **84,** xxxi, 34. A new species of Kermes from Connecticut, **179,** vii, 150-1. A historical kermes (new species), **189,** vi, 48-9. **Parker, J. R.**—The life history of the sugar-beet root-louse (Pemphigus betae), **179,** vii, 136-141. **Sulc, K.**—Zur kenntnis einiger Psylla arten aus dem Ungarischen National-Museum in Budapest, **49,** xi, 409-35. **Vuillet, A.**—Sur la presence de l'Aphis maidis Fitch en Afrique occidentale, **87,** 1914, 116-7.

LEPIDOPTERA. Stephan, J.—Das erwachen der schmetterlingswelt im fruhlinge, **191,** 1914, 258-260 (cont.). **Webster, F. M.**—Another migration of Anosia plexippus, **4,** 1914, 100. **Winn, A. F.**—A protected butterfly, **4,** 1914, 109.

Busck, A.—Two Micro-L. on Thurberia thespesioides, **102,** xvi, 30-1. **Davis, W. T.**—Coscinoptera dominicana. Prionapteryx nebulifera, **6,** xxi, 311, 313. **Harrison, J. W. H.**—The genus Poecilopsis, **9,** 1914, 92-4. **Jordan, K.**—Zygaenidae, **173,** Lief. 57, 21-31. **Pearsall, R. F.**—Short studies in Geometridae: No. 2, **411,** ix, 21-3. **Michael, O.**—Die Papilios des Amazonasgebietes, **216,** xxvii, 304-5 (cont.). **Strand, E.**—Zur kenntnis der neotropischen Noctuidengattung Eugraphia. Neue aberrationen der Noctuiden-subfamilie Catocalinae, **119,** 1913, A, 8, 62-63, 63-77.

DIPTERA. Edwards, F. W.—A remarkable case of venational teratology in D., **8,** 1914, 59. **Fabre, J. H.**—The life of the fly; with which are interspersed some chapters of autobiography. Translated from the French. New York, Dodd, Mead & Co., 1913. 477 pp. **Guyenot, E.**—Etudes biologiques sur une mouche Drosophila ampelophila. Necessite de realiser un milieu nutritif defini, **13,** lxxvi, 483-85. **Haines, F. H.**—Do house flies hibernate? **8,** 1914, 60-1. **Lucet, A.**—Recherches sur l'evolution de l'Hypoderma bovis (de Geer) et les moyens de le detruire, **12,** 1914, 812-14. **Richardson, N. M.**—A humble-bee attacked by a diptron, **8,** 1914, 93-4. **Whiting, P. W.**—Observations on blow-flies; duration of the prepupal stage and color determination, **198,** xxvi, 184-94.

Alexander & Lloyd—The biology of the No. American crane flies. 1. The genus Eriocera, **189,** vi, 12-37. **Cockerell, T. D. A.**

—Three D. from the Miocene of Colorado, **4,** 1914, 101-2. **Enderlein, G.**—Zur kenntnis der Stratiomyiiden mit 3-astiger Media and ihre gruppierung . . . (subfamilien: Geosarginae, Analcocerinae, Stratiomyiinae), **22,** xliii, 577-615. **Felt, E. P.**—Acaroletes pseudococci n. sp., **179,** vii, 148-9. **Hendel, F.**—Namensanderungen (Aldrichiomyza for Aldrichiella, Haplomyza for Antineura), **369,** iii, 73. **Malloch, J. R.**—Costa Rican Diptera. Paper I. A partial report on the Borboridae, Phoridae and Agromyzidae, **2,** xl, 1-36. Some undescribed No. Am. Sapromyzidae, **161,** xxvii, 29-42. **Melander, A. L.**—A synopsis of the dipterous groups Agromyzinae, Milichiinae, Ochthiphilinae and Geomyzinae, **6,** xxi, 283-300. **Townsend, C. H. T.**—Notes on Exoristidae and allies, **6,** xxi, 301-305. **Tilbury, M. R.**—Notes on the feeding and rearing of the midge Chironomus cayugae, **6,** xxi, 305-8. **Walton, W. R.**—A new tachinid parasite of Diabrotica vittata, **102,** xvi, 11-14.

COLEOPTERA. Barber, H. S.—On interspecific mating in Phengodes and inbreeding in Eros, **102,** xvi, 32-4. **Bretschneider, F.**—Ueber die gehirne des goldkafer und des lederlaufkafers, **22,** xliii, 490-97. **Dow, R. P.**—The early French Coleopterists, **411,** ix, 6-13. **Stellwaag, F.**—Ueber den flugapparat der Lamellicornier, **22,** xliii, 558-60. **Walsh, G. B.**—A note on deformed antennae in certain beetles, **8,** 1914, 62-3.

Coad & Pierce—Studies of the Arizona Thurberia weevil, of cotton in Texas, **102,** xvi, 23-27. **Davis, W. T.**—Calosoma frigidum and willcoxi at Wading River, L. I., **411,** ix, 23-4. **Fruhstorfer, H.**—Eine neue Agrias-rasse aus Brasilien, **84,** xxxi, 30. **Graf, J. E.**—A preliminary report on the sugar-beet wireworm (Limonius Californicus), **7,** Bul. No. 123. **Harris, E. D.**—Cicindela longilabris, **6,** xxi, 31. **Hyslop, J. A.**—Description of a n. sp. of Corymbites from the Sonoran zone of Washington State, **161,** xxvii, 69-70. **Leng, C. W.**—Chlaenius leucoscelis. Lophoglossus. Ochthebius attritus. Ceutorrhynchus hamiltoni. Cicindela blanda, **6,** xxi, 311-12. **Nelolitsky, F.**—Dr. J. Mullers monographie der blinden Trechusarten, **422,** 1914, 28-33 (cont.). **Schaeffer, C.**—Notes on some No. American species of Rhizophagus, **6,** xxi, 309-11. **Smith, R. J.**—Cychrus ventricosus (Note), **462,** i, 119-120. **Wagner, H.**—Beitrag zur kenntnis der Apion-Fauna Zentral- und Sud Amerikas. Beschreibungen neuer arten, **119,** 1913, A, 9, 137-64.

HYMENOPTERA. McIndoo, N. E.—The olfactory sense of the honey bee, **184,** xvi, 265-346. **Malysher, S.**—Life and instincts of some Ceratina-bees (Russian), **19,** xl, No. 8, 58 pp.

Cockerell, T. D. A.—Descriptions and records of bees.—LVII. (Table to some species of Tetralonia), **11,** xiii, 272-286. Bees visiting Thurberia, **102,** xvi, 31-2. **Crawford, J. C.**—Two new parasitic H. from Arizona, **102,** xvi, 29. **Emery, C.**—Cephalotes et Cryptocerus. Le type du genre Cremaloaster, **35,** lviii, 37-9. **Girault, A. A.**—Hosts of insect eggparasites in Europe, Asia, Africa and Australasia, with a supplementary American list, **92,** x, 87-91 (cont.), **MacGillivray, A. D.**—New genera and sp. of Tenthredinidae, **4,** 1914, 103-108 (cont.). **Newell, W.**—A natural enemy of the Argentine ant, **179,** vii, 147. **Ruzsky, M.**—Myrmekologische notizen, **119,** 1913, A, 9, 58-63.

Genera Insectorum, dirigés par P. Wytsman.—This excellent work is indispensable to the thorough systematist. The first part, or fascicule, appeared in 1902, and as will be observed by the following list of recent issues, 153 parts have already been published. Each part treats of a separate family or subfamily and is by a competent authority.

We take this opportunity to call our subscribers' attention to the recent issues as follows: Orthoptera: Mantidae, subfamily Perlamantinae, by E. Giglio-Tos, Fasc. 144, 13 pp., 1 pl., price 5.50 francs. Hemiptera: Pentatomidae, subfam. Dinidorinae, by H. Schouteden, Fasc. 153, 19 pp., 2 pls., 9.80 fr. Lepidoptera: Tortricidae, by E. Meyrick, Fasc. 149, 81 pp., 5 pls., 31.20 fr. Diptera: Cecidomyidae, by J. J. Kieffer, Fasc. 152, 346 pp., 15 pls., 114.20 fr.; Therevidae, by O. Kroeber, Fasc. 148, 58 pp., 3 pls., 22.80 fr. Coleoptera: Carabidae, subfam. Pentagonicinae, Peleciinae, Hexagoniinae, by P. Dupuis, Fasc. 145-147, 4, 5, 4 pp., one plate each, 3.80 fr., 4.00 fr., 3.80 fr.; Scarabaeidae, subfam. Aegialiinae, Chironinae, Dynamopinae, Hyposorinae, Idiostominae, Ochodaeinae, Orphninae, by A. Schmidt, Fasc. 150, 87 pp., 3 pls., 26.40 fr. Hymenoptera: Chrysididae, by H. Bischoff, Fasc. 151, 86 pp., 5 pls., 32.20 fr.

These may be procured separately, as can also the previous issues, from M. P. Wytsman, Quatre-Bras, Tervueren, Belgium.

Evolution of the Color Pattern in the Microlepidopterous Genus Lithocolletis. By Annette Frances Braun. Journ. Acad. Nat. Sci., Phila. (2), xvi, pp. 105-168. 26 text figs. Pls. III and IV with 99 colored figures. Febr. 12, 1914.—From a study of the development of the pupal wings of eleven species of *Lithocolletis* and a comparison of the color pattern in adults of 95 species of this genus and its immediate allies, *Porphyrosela* and *Cremastobombycia,* Miss Braun (well known to readers of American entomological journals for her work on our Microlepidoptera) reaches the conclusion that "the primitive color pattern is a series of seven uniformly colored pale, yellow trans-

verse bands, separated from one another by unpigmented areas. . . . These bands, either in their primitive or modified shape, constitute the ground color. Upon this ground color a second darker series of elements, the markings proper, also usually transverse, are superimposed." The two plates present the wings of the species studied arranged in the form of a phylogenetic tree, the branches and twigs of which indicate the order of evolution of these markings as interpreted by our author. Students of other Lepidoptera will be interested in the suggestion, based on these results, that "the uniform yellowish ground color which suffuses the wing in the higher Lepidoptera, beginning at the base and spreading distalward, is the outcome of a phylogenetically older type of marking, originally banded, and later fused to a uniform color, and that the markings are a second series superimposed upon the first."

Doings of Societies.

FELDMAN COLLECTING SOCIAL.

Meeting of December 17, 1913, at the home of H. W. Wenzel, 5614 Stewart Street, Philadelphia. Twelve members were present. Vice-President Wenzel in the chair.

Mr. Harbeck said he had caught *Cicindela rugifrons* Dej. (Col.) at Manahawkin, New Jersey, September 1, 1913, September 3, 1911, and September 5, 1909, both from the pine district and near the meadows. Those from the latter are much darker, one being almost violet; he was wondering if this would be constant. Some one remarked that on several occasions he had found *Cicindela* very slow in flying, and Mr. Harbeck said he had caught *C. purpurea* Oliv. by picking it up with the hand. Mr. George M. Greene said the first specimen he had collected in northern New Jersey of var. *limbalis* Kl., Howell's pond, April 27, 1901, he had caught in this manner.

Mr. J. W. Green exhibited a short winged Longicorn, *Necydalis mellitus* Say from Pocono Lake, Pa., August 1, 1910, also a box containing mostly weevils which he collected in Davis Mountains, Chisos Mountains and a few other Texan localities in July.

Mr. Kaeber exhibited specimens of *Tillomorpha geminata* Hald. (Col.) from Woodbury, New Jersey, May 13, 1906, and

remarked that, though the New Jersey List states they breed in sumac, he had cut these from oak.

A vote of thanks was tendered Mr. Wenzel, Jr., for the manner in which he entertained us at the November meeting.

Adjourned to the annex.

Meeting of January 21, 1914, at the home of H. W. Wenzel, 5614 Stewart St., Philadelphia. Twelve members were present, Mr. William T. Davis, of Staten Island, New York, visitor; President Haimbach in the chair.

The following officers were elected to serve for the year 1914: *President*, H. A. Wenzel; *Vice-President*, W. S. Huntington; *Treasurer*, H. W. Wenzel; *Secretary*, George M. Greene; *Assistant Secretary*, J. W. Green.

The resignation of Mr. C. Few Seiss was read and accepted.

Mr. Davis exhibited a box of insects and pointed out the following to the members as interesting: A species of grasshopper, *Conocephaloides* (Orth.) from Cape May County, New Jersey, August 16, 25, 1912, which, though more slender than the typical *crepitans* Scudd. from the Middle West, he decided to place in that species; a roach *Leucophaea surinamensis* Linn. (Orth.), which he collected in the turtle pen of the reptile house at the Bronx Zoo, New York, January 12, 1914; an Odonate, *Enallagma recurvatum* Davis, Lakehurst, New Jersey, June 28, 1913, and a species of Coleoptera from South Bay, Lake Okeechobee, Florida, May 1, 1912, *Dorcasta* perhaps new.

Dr. Skinner said he expects shortly to take a collecting trip to that part of Cuba least known entomologically.

Mr. Daecke exhibited a specimen of *Cicindela harrisii* Leng (Col.) from Carlisle Junction (near Harrisburg), Pennsylvania, July 9, 1912, and a box of Diptera collected by Mr. Laurent, in which was a specimen of *Xylomyia americana* Wied., Mt. Airy, Pennsylvania, July 14.

Mr. Wenzel mentioned Col. Casey's latest paper on *Omus* and two by Dr. W. Horn in *Deutsche Entomologische Mittheilungen* on the same genus, and exhibited the species described. Exhibited also a specimen of *Chrysobothris quadri-*

lineata LeC. (Col.) from Jemez Springs, New Mexico, collected by Woodgate; said that Horn mentioned in his paper of only seeing three, two in the LeConte collection from New Mexico and one in his own collection from Arizona.

Mr. Kaeber said he had gotten specimens of *Melasis* from hickory at Essington, Pennsylvania, January 18, 1914.

Adjourned to the annex.

Meeting of February 18, 1914, at the home of H. W. Wenzel, 5614 Stewart Street, Philadelphia. Ten members were present; Mr. Unruh, of this city, visitor; President Wenzel in the chair.

The Secretary read a letter from Mr. C. W. Johnson, of Boston, Massachusetts, in which he calls attention to the September, 1913, minutes of the Social published in the NEWS for February, 1914, page 89, where they read: "Mr. Harbeck exhibited a specimen of *Chloromyia* with abnormal center legs;" Mr. Johnson says this is undoubtedly *inaequipes* Bigot, and is the *normal* condition of the male.

Mr. George M. Greene exhibited two pairs of the Egyptian Sacred Beetle, *Ateuchus sacer* Linn.

Mr. Laurent showed some plates from an old German paper on Lepidoptera, 1829-1839, which were well drawn and colored, but with the terms considerably mixed; also made some remarks concerning lists of "Coleoptera of America north of Mexico," published from 1853 to 1895; discussed by the members.

Mr. Harbeck reported a freshly emerged specimen of *Rhyphus alternatus* Say (Dip.) found on a curtain February 10. Exhibited a specimen of *Eurosta* from South Meriden, Connecticut, collected by Harry Johnson, which he thought was not *comma* Wied., and Mr. Daecke identified it as his own species *elsa*.

Mr. Wenzel exhibited two live specimens of the rare *Elater discoideus* Fabr., which he had cut from a log just above the house February 7.

Adjourned to the annex.—GEORGE M. GREENE, *Secretary*.

The Entomological Society of France.

The *Bulletin* of the Society for its meeting of January 14, 1914, containing the brief addresses of its retiring (J. Sainte-Claire Deville) and incoming (C. Alluaud) presidents, affords some interesting glimpses of the progress and life of this, the oldest of existing entomological societies. The membership has increased as follows: 1832, 98 members; in 1842, 183; 1852, 192; 1862, 323; 1872, 368; 1882, 373; 1892, 431; 1902, 484; 1912, 522. During 1913 the funds of the Society were increased by about 7000 francs, while at this January meeting a bequest of 25,000 francs from Dr. Henri Marmottan, a member, who died January 6, 1914, was announced. M. Alluaud in the course of his remarks said: "Gentlemen, I am certainly not the only one to have remarked that our meetings in general lack a little in animation. The reading of the minutes of the preceding meeting . . . does not suffice to give attraction to our gatherings. It ought not to constitute the principal and sometimes, alas, the only subject of the session." He called for more frequent remarks under the rubric "Captures and Observations," notices of the chief and most interesting additions to the library and a renewal of the former custom of an annual excursion into the country.

OBITUARY.

Ernest Olivier.

At the meeting of the Entomological Society of France, on January 28, 1914, the President announced the death of Ernest Olivier at Moulins, on January 26, at the age of 70 years. He had been a member of the society since 1873, was for many years editor of the *Revue Scientifique du Bourbonnais* and had especially devoted himself to the study of the fire-flies (Lampyridae). He took part in the Second International Congress of Entomology at Oxford in August, 1912, where he presided at one of the sectional meetings.

E. A. Popenoe. A. G. Hammar.

The *Journal of Economic Entomology* for February, 1914, contains brief biographical sketches of Edwin Alonzo Popenoe (July 1, 1855-November, 1913), for many years professor of entomology at the Kansas State Agricultural College at Manhattan, Kan., and of Alfred Gottlieb Hammar (May 19, 1880-October 15, 1913), at the time of his accidental death an assistant in the U. S. Bureau of Entomology. It will be recalled that resolutions from Cornell University on the death of Mr. Hammar were published in the News for December last, page 480.

EXCHANGES.

Not Exceeding Three Lines Free to Subscribers.

☞ These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and only when necessary those at the top (being longest in) are discontinued

Lepidoptera—Prime specimens of butterflies from this section (either spread or papered) in exchange for other North American species new to my collection.—R. A. Leussler, 1137 So. 31st St., Omaha, Neb.

Wanted for Cash—Fertile eggs of *Attacus atlas*, *Attacus edwardsii* in season or for exchange for *Actias mimosae*, *Antheraea pernyi* and other exotic and native eggs.—A. J. Potter, East Killingly, Conn.

I have for exchange live pupae of *Ph. achemon*, *H. aurora*, *P. sexta*, *P. asterias*, *P. quinquemaculata*, *T. polyphemus*, *E. tityrus*, *chersis* and *A. octomaculata*, also lot of dupls. in papers from Europe. Wish pupae from Arizona, California or Mexico.—J. N. Lang, 1433 So. 59th Avenue, Cicero, Ill.

Urania riffius—Most beautiful exotic to exchange for other exotics or rare Catocolas of North America.—Jos. H. Reading, 1436 N. Rockwell St., Chicago, Ill.

Coccidae—California Coccidae exchanged for specimens from all parts of the world.—E. O. Essig, Secretary State Commission of Horticulture, Sacramento, Cal.

Wanted—Geometridae from the Southern, Middle and Western States. Offer in exchange liberal numbers of Texan Lepidoptera.—Dr. F. W. Russell, 4119 Cedar Springs Road, Dallas, Texas.

Wanted—Insect Life, Vol. V, No. 5, and Bibliography of American Economic Entomology, No. 4. Write offer.—Geo. M. Greene, 1303 N. 54th St., Philadelphia, Pa.

Miss Sarah Maul, 14 Channing St., N. W., Washington, D. C. Collector and breeder of Lepidoptera. Purchasers wanted.

The undersigned will greatly appreciate receiving records of New Jersey species not listed in Smith's Insects of New Jersey.—Harry B. Weiss, 272 Hale St., New Brunswick, N. J.

N. A. Coleoptera for Exchange—My list of over one thousand species of N. A. Coleoptera is now ready. If you wish to exchange, answer by sending me your list of what you have to offer.—Philip Laurent, 31 East Mt. Airy Ave., Philadelphia, Pa.

I offer for exchange a few perfect, bred specimens of *Vanessa gonerilla* in papers. Desire many common North American species of Lepidoptera, both Macro and Micro.—Fred Marloff, Box 104 Oak Station P.O., Allegheny Co., Pa.

Specialists—I will collect for cash any order of insects during the coming season in this vicinity. Flat rates given.—Harry Johnson, South Meriden, Conn.

For Exchange—Volumes VII to XII Entomological News for other entomological publications or for Lepidoptera.—Alex. Kwiat, 2055 Pensacola Ave., Chicago, Ill.

Photographs of Entomologists Desired.

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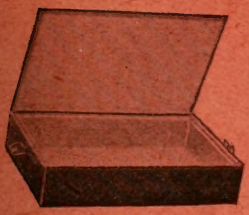

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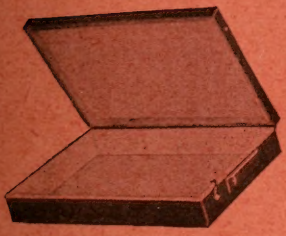

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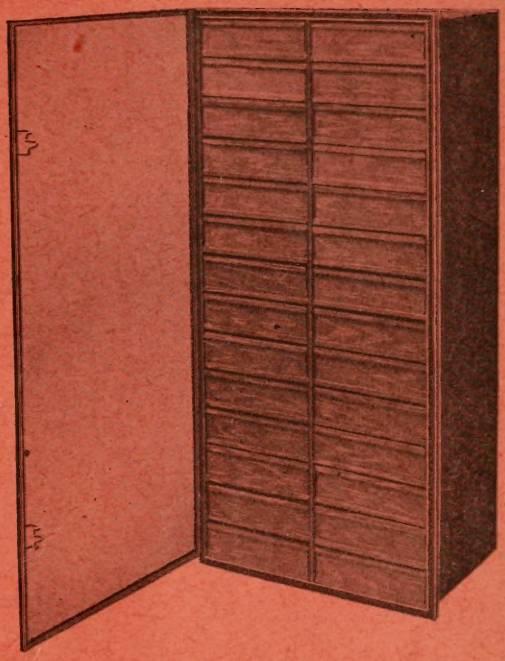

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